Gleanings in Bee Culture

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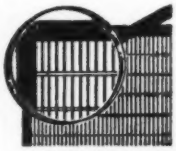

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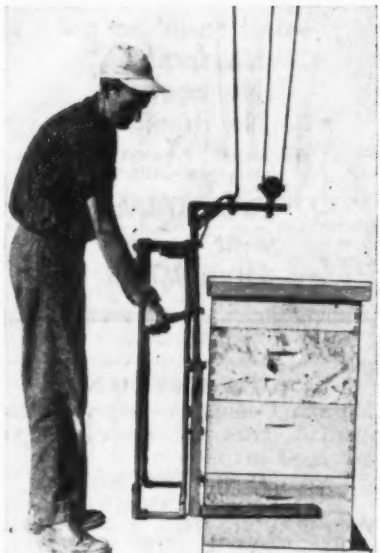

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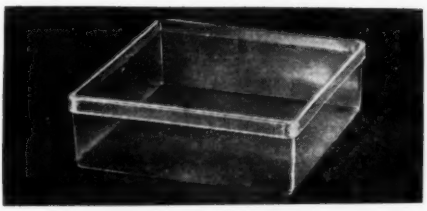

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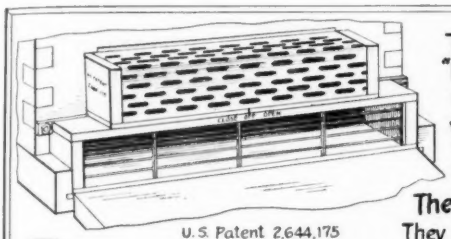

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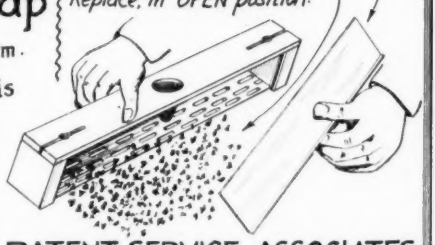

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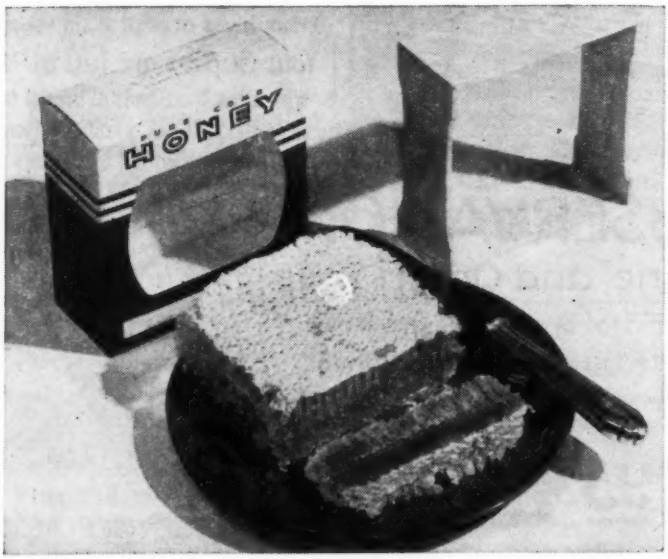

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4-H BEE CLUBS

Encourage Young People to keep bees

says W. W. CLARKE, JR., Extension Apiarist, State College, Pa.

The author, W. W. Clarke, Jr., at the right is giving pointers on honey sales to a group of 4-H beekeepers.

IN PENNSYLVANIA we find the the 4-H Bee Club program is one of the best ways to introduce young people, between the ages of 10 and 12, to the bee business. We feel, if we can get them started in using good methods under the supervision of the extension service, they are more likely to continue following approved practices. Of course, we do not expect all of them to continue as beekeepers, any more than we expect all adult beekeepers to become commercial men—although some of our better beekeepers did begin in this way.

We believe also that the 4-H bee program helps more people to become acquainted with honey and its uses, since most club members and their families become consumers of honey, as well as very enthusiastic salesmen. As a result, most of their neighbors and relatives are at least exposed to honey. We find, as a rule, they pack a very high quality honey. Several of our 4-H Club members earn part of the money they need for college by producing and selling honey. Many are active in their county beekeepers' association, some of them even hold offices in these groups.

Pennsylvania usually has over 150 bee club members scattered over the State. When several interested boys and girls are in a fairly small area, they form a 4-H Bee Club so that all meetings are junior-sized beekeepers' meetings where problems are discussed and demonstrations are held. If there are not enough members to form a separate bee club (usually 10 or more), they become part of a community club where all kinds of projects are carried on. In the community-type club, instruction in all projects is given at the general meetings and all members are exposed to some beekeeping.

(Continued on page 444)

XUM

Store DISPLAYS Sell Honey!

says **VICTOR R. STEPHEN**

MILLIONS OF PEOPLE go into food stores in this country daily—every one a potential buyer of your product if the grocer stocks and displays it prominently. Since the customer is already buying food, he is in a receptive mood and research has shown that many food purchases can be classed as impulse buying.

If your honey is packaged attractively and priced to sell, you should be able to arrange with local store managers for a small display now and then. Tie-in displays are always good sales aids, such as a combined honey and pancake mix display with posters reminding people how good pancakes smothered in honey can be.

We know why store displays sell honey, so let's see how you go about planning one.

The Location

One of the most important questions in planning a store display is where the space is located and how large it is. Is it on an aisle, on the counter, or in a window? Each of these locations can be treated differently. Is the space well lighted or will additional lights be needed? If more light is desired, or the use of a small motor is contemplated, are electrical outlets handy? In the event that a tie-in with other merchandise is planned, be sure to place your honey display near that product.

Select a Theme

Every good display needs a theme or main idea such as Honey-Nutritious and Delicious, New Honey Recipes, It's National Honey Week, or Honey for Breakfast. After deciding on a theme you can relate other parts of the display to it. For example, if the theme is Honey—Nutritious and Delicious, a picture of healthy, happy children enjoying honey would be good. For the theme New Honey Recipes, mouth-watering pictures of the dishes or in some cases the actual dishes them-

Here's a simple window display featuring a clock with a happy-painted face. Wide strips of colored paper hung from top to bottom at each end of the window help to frame the honey. Eye-catching Honey Institute poster remind people of the many times honey is a treat.

it's HONEY time
ANYTIME
Just arrived HONEY
HONEY on Grapefruit adds extra goodness
For tastier sandwiches HONEY
A Delicious treat HONEY ICE CREAM
... gee, it's NATIONAL HONEY WEEK

Every attic has an old picture frame. Here is one painted white and used as the focal point of a store display. Behind the frame is a large jar of honey with smaller bottles arranged around the outside on a draped dark cloth background.

selves could add much to your display's appeal. Many types of printed material posters, signs, and recipes are available at cost from the American Honey Institute.

Choosing the Colors

In the store you are competing for attention with row on row of colorful attractively packaged foods. To be successful a display must show your product to best advantage so the colors should be selected carefully. Dark backgrounds show off light honey well and will help focus attention on your display. Red, yellow, and blue are good background colors and although expert opinion on the use of green with food products varies, in this case it would probably be all right. Backgrounds can be made of cloth, corrugated cardboard, crepe paper, a mirror, or many other materials. In using printed signs, be sure the colors go with the ones you have chosen for the background.

Special Effects

A dramatic spotlight effect can be attained by a simple clamp-on photoflood lamp that can be purchased in any photography shop. An electric train labeled "The Bee Line" with cars loaded with honey would add movement and color to any display. Take care to keep the train away from the edge of the counter and out of reach of small children. A display of this sort is best located in a store window.

Children's toys, especially those in the shape of bees, are good attention-getters. Toy blocks with letters on the sides can be used to spell out simple words like "honey" and "good". Dolls can also be used. Many commercial displays use small inexpensive flashlight batteries. These motors run for many weeks on one battery. For more information about them write to J. W. Glaser, 117 Stanley Ave., Yonkers, N. Y. Turntables are eye-catching and a simple one is easy to make.

Steer clear of displaying live bees or any beekeeping equipment which may have the wrong effect on squeemish food buyers.

Give Aways

Samples are great salesmen. Who can resist buying a jar of clear honey after being treated to a delicious taste?

(Continued on page 442)

A display featuring give-aways of honey cookies or honey candy like this will have mouths watering. Honey recipes as well as the samples are free for the taking. Honey Institute posters further whet the appetite.

beekeeping in ILLINOIS

G. H. CALE, Editor
American Bee Journal

ILLINOIS, lying between the Great Lakes and the Mississippi River, is the crossroads of America, a middle-western empire of 9,000,000 people, ranking fourth in farm production and manufacturing, first in rail mileage. Coal underlies two-thirds of its fertile acres. Reservoirs of oil yield about 60,000,000 barrels a year. Chicago handles more water-borne traffic than the Panama Canal. Annually Illinois lake and river cargoes total 46,000,000 tons.

Illinois is so long that within its boundaries we may have a snow-bound northern winter and conditions in the south not unlike more southern states. It is a rolling country with much fine flat farming land interspersed with creeks, rivers, and valleys. The state is 385 miles long, 216 miles wide at the widest point. Like other interior states, Illinois has a continental climate with severe changes in temperature, especially in winter. Summer is marked by periods of high temperature.

Northern Illinois is of glacial origin, with a rich loam which produces big crops of cereals, grasses, and vegetables. Soil is lighter and better drained than it is farther south. Soils in the southern two-fifths of Illinois south of the terminal moraine are different. Black loam is confined to small areas, mostly along river bottoms. The greater part of this region has a soil of light color underlaid with hardpan. Most of the section was originally covered with timber.

Illinois lies wholly in the great Prairie Plains of the upper half of the Mississippi Valley. A layer of glacial drifts from 20 to 30 feet thick extends over most of the state, except in the northwest corner and about 150 miles in the southern counties. The western portion of the glaciated upland along the Mississippi River is often deeply covered by a brown silty loam known as loess.

The whole state is admirably suited to agriculture. The northern three-fifths of the state, particularly in the central part, supports an immense acreage of corn, beans, wheat, and oats. A large area in the southern two-fifths is devoted to fruit growing and it is often called the fruit belt.

Since Illinois lies in the white clover belt of the prairie region, about the time I came here white Dutch clover was the principal honey plant. But as the years went by this clover began to be of less importance and only infrequently of surplus value. In my experience, about every five to ten

years there may be a good surplus from white Dutch clover.

However, sweet clover gradually supplanted white Dutch and for a time became the dominant surplus honey plant. In late years, however, sweet clover has in turn been reduced in acreage while cash farm crops have increased to the point where now there are few places in which sweet clover can be depended upon for an annual surplus. It is still, however, a highly important plant, particularly in the northern glacial soil and in restricted areas elsewhere.

Illinois is blessed with a long list of honey plants which taken together, or sometimes by themselves, put the average crops of the state considerably above this.

Alsike clover is often said to be an excellent honey plant, but from my own experience this is only partly true. In some years in most favorable locations particularly in the north and west it is dependable, while in other years it is not.

In years when white Dutch clover, the several varieties of sweet clover, and alsike clover bloom more or less together, under satisfactory conditions of temperature and moisture, crops of 100 to 200 pounds per colony are not unusual. Frequently, in such years, nectar gathering will continue from the 25th of May until August without much interruption, to be followed by additional surplus from fall sources.

There are quite a few secondary honey plants through the year. Two or three years, in the last 34, I have known black locust to yield some surplus of very fine honey, usually in May. It seldom occurs, however. Also in April and May dandelions are a great source of nectar for rapid colony build-up and occasionally there has been some surplus stored from it to be used rather completely by the bees for brood rearing before the summer honey flow. In the fruit belt, in April, build-up in spring is excellent and when colonies are located in a fruit-growing section where are also tributary water courses, spring supplies of nectar and pollen are unusually good. However, the present use of insect spray has driven colonies out of the fruit areas in many parts of the state.

Among these secondary sources, which bloom in mid-summer or just before, can be listed **Monarda Punctata,** often called bergamot, buckbrush (coralberry or Indian currant), buckwheat, white boneset, Virginia waterleaf, wild cucumber in restricted areas, and some blue vine, especially in the extreme south. Some surplus has been obtained in our location one or two years from Virginia waterleaf; small amounts almost every year from bergamot and from white boneset and buckbrush. For rapid spring build-up I have never seen anything like the Illinois river bottoms from the last of April well into May. One of the most prominent nectar sources in this period is redbud, whose pink acres often extend over wide areas. Willows, maples, and elms also furnish a good share, to produce strong colonies before the main flow.

In the fall there are quite a few valuable surplus honey plants. The two most noteworthy are heartsease and Spanish needle. Heartsease honey by itself is a light amber of very agreeable flavor. Spanish needle, on the other hand, is a brilliant almost yellow color with a very good, but strong, flavor. When they are mixed they are frequently used as table grade honey. Before drainage and cash crops reduced the growth of Spanish needle and heartsease, many areas in the river valleys in fall would be pink with heartsease and bright yellow with Spanish needle in massive acreages. Fifty pounds or more of surplus was usually obtained. However, I do not remember securing any fall honey here in Hamilton for the past 10 years.

To tip off the season, asters are usually abundant. The frost flower, or many-flowered aster, is probably the most important. I have had colonies of bees that in early November obtained a full super of honey from this plant. If the season is late and weather satisfactory, aster honey is just as good for the bees for winter food as white clover. However, aster may be unripe when winter comes and then bees do not winter well on it.

Honey production in Illinois in 1953 totaled 5,084,000 pounds; in 1952, 7,849,000 pounds. From 1952 to 1953 there was a slight reduction in the number of colonies of bees in the state, al-

(Continued on page 445)

Tommy Hines
4-H Beekeeper—Extraordinary

by HARVEY B. LOVELL

Tommy Hines and his father, Maurice Hines.

TOMMY HINES, 4-H champion beekeeper, is stepping up to a full-scale commercial beekeeper this summer when he takes a job with a well-known commercial beekeeper. But let us see how he won this title in Kentucky.

Several years ago, Tommy who lives in Morgantown, Kentucky, in the southwestern part of the state where beekeeping conditions are only fair, started his 4-H activity with a poultry project. When his family moved to a house in town and a small back yard, he very nearly had to drop out of 4-H work entirely. Luckily he knew an experienced and enthusiastic beekeeper, I. V. Evans of Aberdeen. Mr. Evans not only sold him a couple of hives but also gave him a pile of books and magazines on beekeeping, not to mention some good advice.

Tommy's bee project soon became his first interest and he gradually interested others. The editor of the local weekly paper, Billy Cook, even set aside a spare room in the newspaper building for use as an assembly shop for bee hives and put some bees in his own back yard. Another local boy also started keeping bees as a 4-H project and interest in beekeeping began to flourish all over the area.

Tommy exhibited honey in both the county and state fairs and won a flock of ribbons as well as a sizeable sum of money, most of which went back into his bees. Meanwhile he gradually built up his apiary until he had 10 colonies. He even rented one to pollinate cucumbers.

Next he won first place at his county fair with a bee demonstration and then the district award at Franklin County competing against the winners of 10 counties each using whatever project he liked best.

Then Tommy and his county agent, Samuel Kent, began discussing the annual 4-H spring rally where winners of various contests represent their county at district meetings. The suggestion that a package of bees could be hived as part of the demonstration was accepted by Tommy and the title "How to Hive a Package of Bees" was adopted.

After a lot of practice, Tommy again won his county award and the district award and went to the big state contest at Lexington. Here he competed

against a great variety of projects, but as one onlooker remarked, "What can you do with a pig that is as interesting as working with live bees?" As usual Tommy was the only one using a bee project.

How did the program go over! The 17-year old boy working without gloves or veil successfully hived the package of bees without a single sting being received by anyone present, and at the same time gave a talk on the importance of bees to the farmer. Tommy divided his talk into three parts.

A. Bees as a hobby.
B. Bees as a side line.
C. Bees as a main business.

He had large placards which he used to emphasize the main features of each part of his demonstration. For example, "Bees as a Main Business" was divided into three sub-topics as follows:

1. Commercial pollination.
2. Commercial honey production.
3. Package bees and queens.

The Butler County agent, Mr. Kent, deserves a lot of credit for the fine assistance he gave the young boy. Mr. and Mrs. Maurice Hines also gave him much needed encouragement and financial backing. With this stimulus and the big state award Tommy has decided to go into beekeeping professionally.

He attended the Biloxi Meeting of the American Beekeeping Federation in January. He remarked that he went to the meeting not knowing a soul; but got acquainted with 150 beekeepers and better still landed a job with Henry Hansen of Dakota City, Iowa. He plans to work from June until the end of the year and learn the commercial side of beekeeping from an outstanding professional. After that he plans to attend some agricultural college the second semester.

Tommy attended the Kentucky State Beekeepers' Meeting in Louisville in March and made an excellent talk. He has accepted an invitation to speak at the meeting of the Eastern Apicultural Society at Kingston, Rhode Island, July 13 to 15. Those beekeepers who did not meet him at Biloxi will have an opportunity to do so in Rhode Island.

Louisville, Ky.

Vacuum Cleaner Gets Rid of Bees

A. K. HIBBARD, Lorain, Ohio

THE TELEPHONE rings: A young woman says that a swarm of bees has just found a hole in the side of her house and has taken over! She is frightened especially because she has a baby that she fears will be stung by them. What to do? She had already called the Fire Department and was told that they do not handle bees. They suggested that she call Mr. Hibbard. He has bees and perhaps will be able to help. I replied that at my age I no longer enjoy working from a ladder which this job seems to require, but my young friend and neighbor, Mr. Joe Janosik, would doubtless be able to help her—and so it was. He could and did help her and we both learned a new trick in handling bees.

Finding that it was easily possible to enlarge the opening in the side of the house Joe took the family vacuum cleaner equipped with the standard flexible suction hose and by inserting the end of the hose into the cluster of bees they were very quickly and easily drawn out killing every bee as it was sucked through the whirling blades. Needless to say the lady with the baby was highly pleased and gladly paid Mr. Janosik for his professional services.

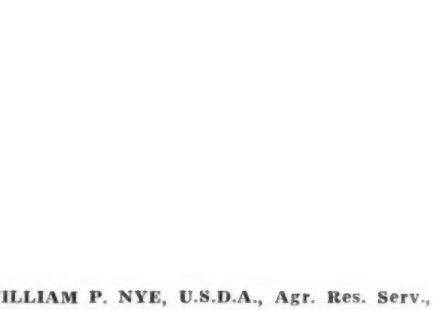
In this case the bees had just entered the house and there was no comb or honey to deal with. In places where the swarm had become well established with some quantity of comb and honey I will not try to say whether the vacuum sweeper method would be as successful as it was in this job.

It is probable that somewhere sometime other beekeepers have used the same method of removing bees, but to us it is a newly discovered idea, and in the language of Propolis Pete we live and learn, and the otherwise dull day was no longer dull.

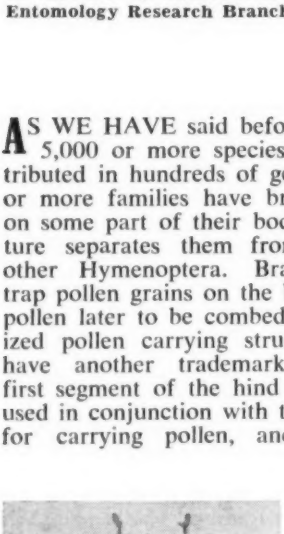
BEES and the TOOLS of Their Trade

as reported by GEORGE E. BOHART and WILLIAM P. NYE, U.S.D.A., Agr. Res. Serv., Entomology Research Branch, in cooperation with Utah Agricultural Experiment Station.

AS WE HAVE said before, all of the 5,000 or more species of bees distributed in hundreds of genera and six or more families have branched hairs on some part of their body. This feature separates them from nearly all other Hymenoptera. Branched hairs trap pollen grains on the body surface, pollen later to be combed into specialized pollen carrying structures. Bees have another trademark—the broad first segment of the hind tarsus. It is used in conjunction with the hind tibia for carrying pollen, and sometimes (notably with honey bees) to transfer pollen from the body to the corbiculum. Parasitic bees, male bees, and bees that carry pollen on the abdomen have somewhat narrower tarsi without special structures for carrying or transferring pollen. Nevertheless, even they are more "paddle-footed" than the wasps.



No. 1. Honeybee showing hairy glossa extending from tubular sheat.



No. 2. Mouth parts of honeybee showing development of maxillary blades and labial palpi.

Nectar Gathering

All bees are adapted for sipping nectar from flowers. For this purpose most of their mouth parts are interlocked to form a tubular sheath. Emerging from this sheath is an extensible tongue (glossa) with hairy sides and tip for sponging free liquid (Fig. 1). The most primitive bees (family Colletidae) have a short, broad proboscis with a two-lobed tongue that differs little from the apparatus of the sphecid wasps from which they arose. However, the colletids have a well-developed honey stomach since, unlike the sphecid wasps, they have to transport honey for later regurgitation into the brood cells.

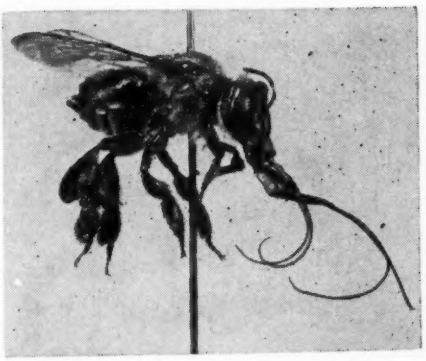
The more primitive members of the next family, Andrenidae, are a step higher in the scale. Their tongue has a simple, but well-tufted tip and a more extensible base than the tongue of the colletids. Both groups visit principally small flowers without corolla tubes or only short ones. A few of the andrenids have become adapted to deeper corollas and have a longer proboscis.

The sweat bees (family Halictidae) are remarkable for the long basal arms of their mouth parts, which give to their proboscis somewhat the proportions and action of a human arm. The important remaining families (Megachilidae, Anthophoridae, Xylocopidae, and Apidae) have a highly developed proboscis with a long, tightly interlocking sheath and a long, flexible, and extensible tongue.

The honeybee has a proboscis about midway between those of the short-tongued and long-tongued bees (Fig. 2). This suits it admirably for its catholic tastes. Few flowers are so tiny or so deep that honey bees can't get at the nectar. Many members of the Anthophoridae and Apidae have a longer proboscis than the honeybee and prefer flowers with a long corolla tube or nectar spur. The large and beautiful tropical bees of the genus **Eulaema** (family Apidae) have a tongue so long that they can take nectar from flowers otherwise useful only to moths and humming birds (Fig. 3).

Pollen Gathering

Structures for gathering and transporting pollen point up the importance of this habit among the bees. Here the



No. 3. Eulaema (Apidae), showing extreme development of proboscis for probing deep, narrow corolla tubes.

No. 4. Hylaeus (Colletidae), showing lack of external pollen-carrying apparatus.

No. 5. Female leaf-cutting bee (Megachilidae), showing pollen-collecting hair brush on under side of abdomen.

Fig. 6. Centris (Anthophoridae), showing well-developed pollen brush confined to hind tibia and first tarsal segment.

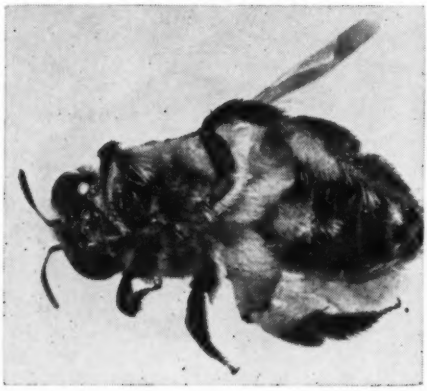


Fig. 7. Under side of Oxaea (Andrenidae), showing pollen carrying hairs on all major segments of hind leg and at base of abdomen.

Fig. 8. Nomadopsis (Panurginae), showing sparse hairs on hind tibia for holding wet lump of pollen.

specialization is often quite narrow, since most bees visit a much smaller range of plants for pollen than for nectar. The most primitive condition is found in **Hylaeus** (family Colletidae), which carries its pollen in the honey stomach (Fig. 4). Early students of bees, noting its lack of pollen-carrying structures, thought **Hylaeus** was a cuckoo bee.

As might be expected, male bees have no well-developed arrangements for carrying pollen, though they sometimes show feeble developments in the direction of their sisters. The nonfunctional mammary structures in male mammals present a parallel situation. Parasitic bees, of which there are many genera scattered among several families, are like male bees in this respect.

The external pollen-carrying structures of bees are of three main types: (1) Dense brushes of hairs. These may be on the underside of the abdomen (Megachilidae) (Fig. 5), the hind tibia and first tarsal segment (Anthophoridae) (Fig. 6), or the hind leg and various other spots such as the base of the thorax and abdomen (Andrenidae and Halictidae) (Fig. 7). Pollen is combed into these brushes and carried to the nest in a dry condition. (2) A few long hairs on the hind tibia, which hold in place a honey-soaked mass of pollen (Andrenidae, subfamily Panurginae) (Fig. 8). (3) An expanded, fringed, and polished area on the hind tibia known as the corbiculum (honeybees and other members of the Apidae). The corbiculum holds a wet lump of pollen. Some of the tropical stingless bees and **Euglossa** have a pollen basket even more conspicuous than that of the honeybee (Fig. 9).

Most flowers make bees work hard for nectar and then load them with pollen while they are getting it. Consequently, bees have little need for special structures to take pollen from flowers. However, a number of unrelated bees that visit the tiny narrow corollas of **Cryptantha** have hooklets on the proboscis for pulling the pollen out of the corolla tube (Fig. 10). A small group of andrenid species that visit **Verbena** perform the same feat by pulling the pollen out of the corolla tube with curved bristles on the front tarsi.

Fig. 9. Trigona (Apidae), showing well-developed corbiculum of hind leg.

Nest Building

Nest building is a highly skilled occupation that calls for special tools. Indeed, the tools used by bees often seem too simple for the specific and precise tasks they perform. The turret-making bees of the family Anthophoridae shape intricate nest entrances with a simple triangular plate at the tip of abdomen (Fig. 11). The worker honeybee fashions the geometric wonder of its waxen cells with simple spatula-shaped mandibles. The Megachilidae specialize in the use of nesting materials that they have to tear with their mandibles from a solid substrate. **Anthidium,** for example, has saw-toothed jaws for carding the fibers from plant stems (Fig. 12). **Dianthidium** has simple cutting edges on its mandibles for scraping resin from plant stems and leaves (Fig. 12). **Megachile** has shearing areas between the teeth of its mandibles used for cutting circular and oval leaf pieces (Fig. 12). Many of these bees also use their mandibles for tunneling through wood or hard mud. Male bees gather no nesting materials; neither do they build nests, but they do have to escape from their brood chambers before taking wing. Consequently, they have well-developed mandibles suitable for simple scraping operations but not for the specialized functions of their sisters (Fig. 12). The male honeybee has weaker mouth parts than other bees because of its helpless dependence on the workers.

No. 10. Proteriades showing hooklets on proboscic for taking pollen from flowers of Cryptantha.

Adaptations of Cuckoo Bees

Parasitic bees enter the nests of other bees and lay their eggs in hidden places in or near the provisions of their hosts. For this assignment they are well provided with armor and a powerful sting (Fig. 13). Bandits with their guns and armoured cars have nothing on these "cuckoo bees". **Triepeolus,** a parasitic anthophorid, lays its egg in a hole drilled in the soil beneath the provisions of its host. The unique and complicated

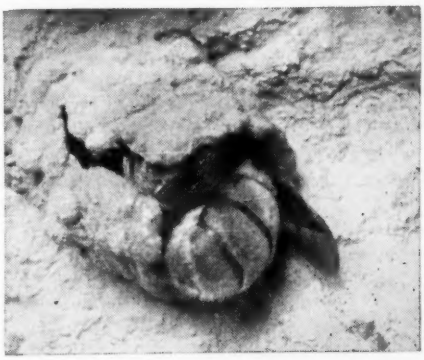


Fig. 11. Anthophora occidentalis troweling mortar with plate on the end of her abdomen.

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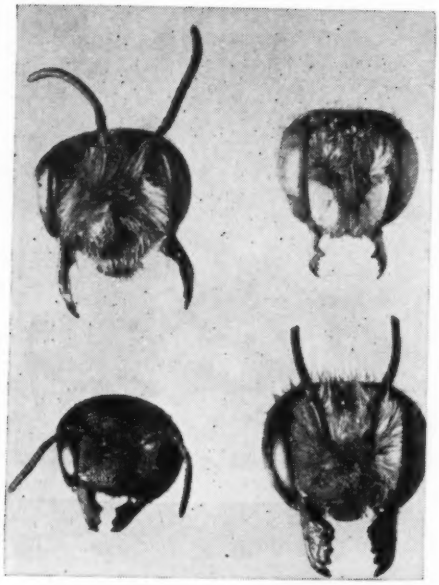

No. 12. Mandibles of (a) Andrena male (b) Anthidium (c) Dianthidium, (d) Megachile.

No. 13. Coelioxys (Megachilidae), a parasite of leaf-cutting bees, showing heavy protective armor.

No. 14. Triepeolus (Anthophoridae), a parasite of long-horned bees showing long sting and drilling apparatus.

structures around its sting appear to be for drilling purposes although no one has ever seen them in action (Fig. 14).

Special Forms and Structures of Males

Especially intricate and specific are the primary and secondary sex structures of the males. The drone honey bee has the most remarkable genital apparatus of all bees. In other bees the penis is small in comparison with the surrounding genital armature and is used for repeated acts of copulation. In the honeybee the supportive structures are degenerate and the penis itself is enormously developed to hold the great quantity of sperm needed by the queen. In a single climactic and fatal act the whole structure is everted into the vagina of the queen and torn loose at its base. The male honeybee is highly specialized for pursuit. He seems clumsy around the hive, but his powerful thoracic muscles and huge eyes fit him well for high, free flight after the young queen. Some of the bumble bees show similar adaptations, but others are little different in body form from the females.

The flower-like front feet of many male leaf-cutting bees (family Megachilidae) are apparently ornaments for the attraction of the female (Fig. 15). Perhaps they attract her because she associates them with flowers. Many species of bees have males with swellings, spines, tufts of hair, and other odd structures on the legs and other parts of the body. The segments of the under side of the abdomen and the genitalia are often strangely modified. These characteristics whose actual uses are not completely known, are a boon to the systematists in their attempts to straighten out the chaotic condition of bee taxonomy.

When the layman says of a group of

No. 15. Male leaf-cutting bee (Megachilidae), showing flower-like front legs.

insects that "they all look alike," he merely means that he is unwilling to examine anything so small. A casual study of the forms and patterns represented in a collection of bees is a rewarding glimpse into the endless variety of nature. Observation of the living, working bees putting their specialized forms and tools to use is even more instructive and entertaining.

• • •

Bee Lore

Illustrated by V. R. Stephen

STINGING A BEE. At the Bee Research Laboratory in Beltsville, Maryland, scientists have developed a way of stinging a bee. No child's play here . . . they have a real purpose in mind. Honeybees get shots of streptomycin for control of bee diseases. The bees are anesthetized, and after injection are allowed to recover.

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Regulation Permitting Optional Feeding of **SULFA** in Florida Rescinded

Reported by ROGER A. MORSE, Entomologist, State Plant Board, Gainesville, Florida and F. A. ROBINSON, Assistant Apiculturist, Agri. Exp. Sta., Univ. of Florida, Gainesville, Florida and Secretary, Florida State Beekeepers' Association

AT A HEARING held in Orlando, Florida, on May 15, 1956, beekeepers representing the beekeeper associations of the state presented briefs on the subject of feeding sulfathiazole to colonies infected with American foulbrood. The vast majority of the briefs indicated that sulfathiazole was not a satisfactory method of treating the disease and recommended that the present regulation of the State Plant Board, which permits optional feeding, be rescinded. In view of the stand taken by the beekeepers and by the beekeeper associations, the Plant Commissioner, Mr. Ed L. Ayers, recommended that the Board rescind the regulation. At its regular meeting, held on May 17, 1956, the Board took such action.

In repealing its present regulation (originally approved on August 10, 1946) allowing the use of sulfathiazole for the treatment of American foulbrood, the State Plant Board of Florida has taken a step which it believes will benefit the beekeeping industry. Florida was one of the first states to use sulfathiazole extensively and is not without experience. Many of the commercial beekeepers, including some who advocated a return to burning at the Orlando hearing, have used sulfathiazole and come to the conclusion it was not a satisfactory or economical treatment. It should be emphasized that action to change existing regulation was prompted by Florida beekeepers and that the original request for such action came from the Secretary of the Florida State Beekeepers' Association, who stated that five out of the six local associations voted unanimously in favor of a change.

This request for a change in the present law came for many reasons. Florida has little area which is not used for bee pasture during at least a part of the year. Migratory beekeeping is increasing and beekeepers recognize that they have a responsibility to themselves, as well as to other beekeepers in this state, as well as other states in the Union. Thus, the economics of beekeeping, as well as a knowledge of the biology of American foulbrood, have dictated a change.

Sulfathiazole and the Economics of Beekeeping

1. It is necessary for a commercial beekeeper in Florida to move his bees in and around the state several times during each year. Florida has many areas totally free of disease, but if the use of sulfathiazole were continued and migratory operations continued, it would be possible to spread this disease into the areas which are now free of disease.

2. Since Florida has no mountains and little area where bees cannot be kept, isolation of bees in Florida is nearly impossible; the action of any one beekeeper affects all beekeepers in the immediate area. In most parts of Florida bees will rear brood during ten months of the year and in some areas will raise brood during the whole year. The fact the brood is present in colonies for longer periods of time than in the northern states increases the danger of infection as well as making an increased number of colony inspections necessary. At the same time there may be increased robbing during those periods where there is a dearth of nectar.

3. The queen and package bee industry is increasing appreciably each year in Florida. Since a number of bees are shipped from this state to northern states, many of which have

areas free of disease, complete protection can be given northern beekeepers only if a burning program is in effect all over the state.

4. The feeding of sulfathiazole in Florida has proved to be a costly operation. Because of the heavy concentration of certain honey plants in given areas in Florida, most beekeepers find migratory operations are necessary and in many instances beekeepers may have all of their colonies located 100 or 200 miles from the base of operation during part of the year. Many of these areas will not support bees during the whole year making quarantine a serious matter for beekeepers and the maintenance of a permanent hospital yard equally difficult.

Sulfathiazole and the Biology of American Foulbrood

1. Sulfathiazole in no way affects the resting or spore stage of American foulbrood. In the spore stage the bacillus may live for many years. It is an established fact that colonies which were once infected with American foulbrood and treated with sulfathiazole will have buried under the cocoons in the individual cells, fecal matter contaminated with American foulbrood spores. It is only necessary to break or damage the comb in order to liberate these spores and reinfect a colony.

2. One of the recommended methods for feeding of sulfa drug to colonies is to feed sugar syrup. The value of feeding sugar syrup is affected appreciably by the amount of incoming nectar and on occasion colonies may not use that syrup which is fed them, but rather may store it along with other honey in the hive. At the same time the dosage given to various larvae in the hive may not be at all uniform, thus arises the problem of feeding a population infected with a population versus the feeding of an individual affected with a population. The danger of sulfathiazole being found in honey is a problem which has concerned apiculturists for sometime.

3. Other methods of applying sulfathiazole to colonies have proved to be too costly on a commercial scale.

This year the incidence of American foulbrood in Florida is about nine-tenths of one per cent. Prior to the advent of sulfathiazole the incidence of American foulbrood in Florida was about three-tenths of one per cent. It is expected that with the use of sulfathiazole being discontinued and that with continued beekeeper cooperation the number of cases of foulbrood can be reduced appreciably.

Increased Bee Pasture

S. H. BURTON, Washington, Ind.

THE LAND BANK Conservation Program, if approved by Congress, in which the farmer is to be paid for taking a per cent of his land out of production of those crops which have had support prices and produced unprofitable surplus and converting this land to soil building crops for a term of years should help the beekeeping industry.

The enactment of this program would supply many additional acres of bee pasture through native volunteer clovers and other honey-producing plants in addition to what may be sown for soil-building purposes. Therefore, I feel that we beekeepers should look forward to increasing our holdings in anticipation of this increased bee pasture becoming effective.

I have just received a pamphlet from the Scott Farm Seed Co., Mechanicsburg, Ohio, Vol. XI, No. 1, which contains some very interesting information for beekeepers as well as farmers in relation to soil-building crops and bee pasture, which I quote below.

"Remembering that a neutral soil has a pH of about 6.8 the following report from the Ohio Experiment Station indicates the necessity of lime for top yields." In other words, if your soil is neutral you do not need fertilizers.

Soil pH Reaction	Yields without Fert. %	Yields with Fert. %	Tons Lime Needed
4.7	40	34	6-8
5.0	69	73	5-6
5.7	80	83	3-4
6.8	100	100	0
7.5	97	85	0

In a report from Iowa on tests for plow down legumes on which legume makes the most corn on normal 60-bushel average corn land, Ladino clover showed the best yield.

XUM

PACKING

Chunk or Bulk Comb Honey

as practiced by KARL KALTHOFF

Fig. 1. Filled 5 and 2½ lb. square and standard pint jars. For eye appeal, the bottom of the comb should touch the side of the jar where the label is attached. Comb in 5 and 2½ lb. jar in center of picture touch the opposite side of the jar. Only one piece of comb is packed in each size jar. Same size label is used on all sizes of jars thus showing comb to advantage.

DURING THE PAST 30 years we have tried various methods of packing chunk or bulk comb honey.

We finally arrived at the present set-up, which we have used during the past five years, and find it satisfactory for packing the crop from our 300 hives.

We produce both extracted and chunk comb honey, and it is marketed direct to retail grocery stores and road side stands.

Extracting and processing is done on one day, the next day it is packed, and on the third day is marketed.

The packing room is small, so it may be easily heated in cool weather. It is mouse and fly proof, and is well lighted by many windows. It measures 7 x 14 feet.

The equipment for processing the extracted honey is shown in Fig. 2.

The honey is pumped from the extractor into a strainer (a) which is placed on top of a warming pan (b).

The strainer is a wood box, 6 inches deep, 18 inches wide and 22 inches long. One-quarter inch hardware cloth is nailed to the bottom, and on it, inside the box, rests a regular galvanized screen. It catches the pieces of wax, etc., as the honey is pumped from the extractor.

At the end of each extracting period this screen is removed and cleaned.

To prevent honey dropping direct on the bottom of the warming pan, a tin pan two inches deep, and as long and wide as the box, is attached below the hardware cloth, one-quarter inch below the hardware cloth at one end of the box, and one inch at the opposite end, with an opening in this end, where the honey will run out into the warming pan down a stainless steel trough. The slope of one-quarter inch to one inch facilitates the flow of honey. The warming pan is water-jacketed and heat is applied with a two-burner

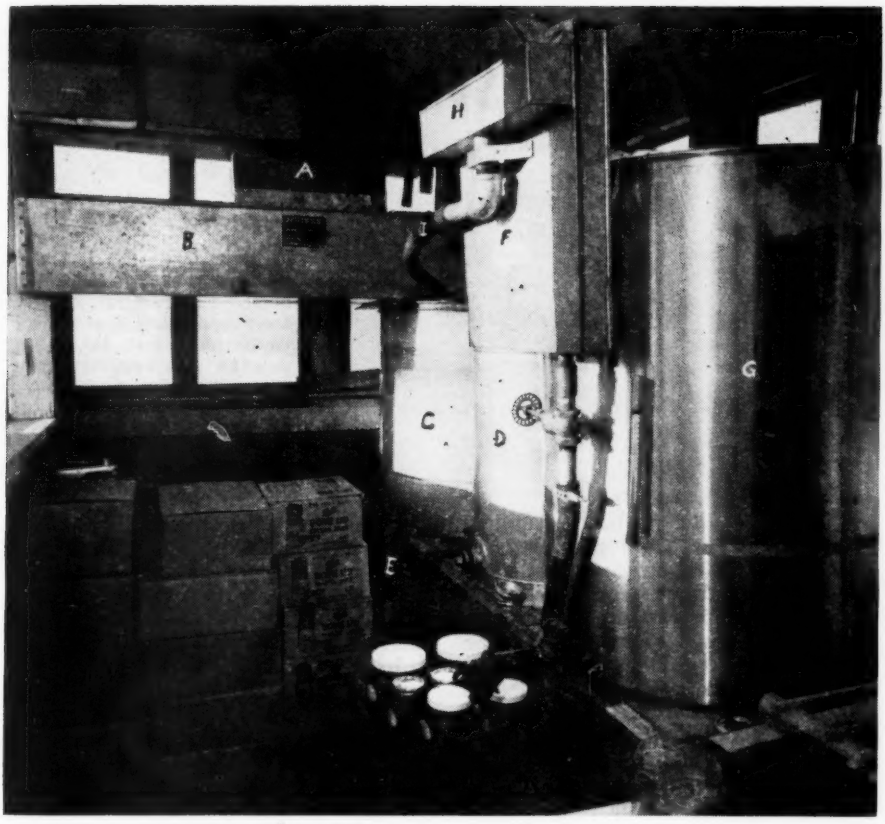

Fig. 2. The processing and packaging set up.

electric plate.

From the warming pan the honey flows into storage tank (c).

Next to the storage tank is a smaller tank (b) for heating the honey, which contains three 60-foot coils of one-half inch tinned copper tubing. The coils are submerged in water which is heated to 165 degrees by gas heat. The gas burner is located under the tank.

The honey in the storage tank is pumped through pipe (e) and coils in the heating tank and flows into a Neises filter (f). The filter contains a strainer of several thicknesses of 74-mesh cloth. From the filter the honey flows into the stainless steel packing tank (g). Stainless steel troughs are placed in the storage and packing tank at the inlets where the honey enters the tanks. The honey flows down these troughs at an angle from the inlets to the opposite side of the tanks at the bottom.

The warming pan and storage tank have pressed wood covers. The packing tank is covered with clear plastic material. If the honey should overflow in the filter due to clogging of the strainer, the honey will flow into the trough (h) and thence through the hose (i) back into the storage tank.

Whenever the heat in the coil tank drops to 150 degrees, pumping is stopped until the temperature reaches 165 degrees again. A thermometer is placed inside the coil tank.

When the packing tank is full, the valve at (j) is opened and as the honey is packed it gradually drains the filter, and the strainer cloth can be removed for cleaning.

The heated honey in the packing tank is left standing over night, and any foam on top of the honey is skimmed off the first thing next morning. By letting the honey stand over night, there will be no foam on top of the

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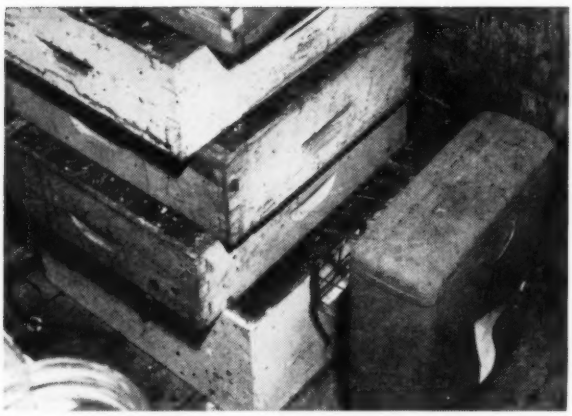


Fig. 3. Stack of chunk comb honey supers are stacked criss-cross to allow heat from the heater to spread through the supers. The first, or bottom super is set on an empty hive body.

honey in the jars when packed.

In warm weather no heat is applied to the packing tank over night, but when the weather turns cool, a one-burner electric plate with three heat adjustments is placed underneath the packing tank on an enclosed shelf. The shelf is attached to the tank stand in such a way that the top of the plate is four inches away from the bottom of the tank. A foot square opening in the top of the tank stand allows the heat from the plate to reach the tank. The plate is set at medium heat.

A room temperature of 85 degrees in cool weather is ideal, both for keeping the honey warm in the packing tank (with electric plate) and for good cutting of the comb.

When ready to pack, the honey in the packing tank will read from 110 to 115 degrees. This temperature will not damage the comb.

To maintain room temperature of 85 degrees, two thermostatically controlled three heat-way electric heaters are used. They are set at high heat. One of them is placed next to the stack of chunk honey supers. See Fig. 3.

Both the storage and the packing tank each hold 1200 pounds of honey.

We produce our chunk comb honey in shallow 5⅜ grooved top-bar frames.

On a table next to the packing tank is a pan measuring two feet long, 18 inches wide and seven inches deep, holding a wooden slatted rack for cutting the comb. See Fig. 4. An opening of one inch in one end of the pan drains the honey that drips from the chunks as they are cut and comb cuttings into an open top 60-pound can that is placed on the floor beneath the opening of the pan. The pan is raised half an inch at the opposite end by placing a piece of wood under it, so the honey will drain readily.

In the bottom of the pan is laid a one-quarter inch mesh hardware cloth approximately the same length and width as the pan. This is nailed to four ½ x ¾-inch pieces of wood running almost the length of the pan. Three small, large headed nails are driven in each piece of wood on the bottom side within ½-inch of the head, one nail on each end and one in the center. This keeps the hardware cloth and pieces of wood off the floor of the pan. See Fig. 4.

The cutting rack is made of two pieces 1 x 2 x 24 inches long, two pieces 2 x 2 x 19 inches long, and five pieces ½ x ¾ x 18 inches long.

To nail together, place 24-inch pieces 18 inches apart, measuring from outside of each piece.

Place 2 x 2 x 19 inch pieces 4½ inches from both ends of the 1 x 2 x 24 inch pieces.

Mark with lead pencil along the outside of the 2 x 2 x 19 inch pieces so the mark will be on the 1 x 2 x 24 inch pieces. Then turn over and nail, being sure the two 2 x 2 x 19 inch pieces project ½ inch beyond the 1 x 2 x 24 inch pieces, thus holding the rack in position on the pan.

The five pieces of ½ x ¾ x 18 inches are then nailed on the two

Fig. 4. The comb is cut on a cutting rack. Marking sticks are placed on the rack back of the comb. They are made of the two-piece bottom bar for frames. A scalloped knife is used.
The 2x2x19-inch pieces and ½x¾-inch pieces are beveled, facilitating the draining of the honey left on the rack from cutting the comb. Before each next comb is cut a spatula is run across the rack, to clean off any honey remaining.

2 x 2 x 19 inch pieces. The two outside pieces are spaced to support the top and bottom bar of the frame, and the other three pieces are then equally spaced between the two outside pieces and all are nailed so that the ends will project the same distance on both sides of the 2 x 2 x 19 inch cross pieces. For ease of operation nail pieces closer to front of rack.

We pack three sizes of jars, the standard square pint, holding 1½ pounds of honey, and the 2½ pound and five pound square chunk honey jars. See Fig. 4.

Combs for the jars are cut in nine pieces, 1⅞ inches wide for pints; six pieces, 2¾ inches wide for 2½ pound jars; four pieces, 4¼ inches wide for the five-pound jars.

A frame will yield nine pieces for pints, six pieces for the 2½-pound jars and four pieces for the five-pound jars. Cuts are made from top to bottom. See above.

To cut accurate pieces of comb for the various size jars, three measuring sticks are used, which are marked for the exact size of each piece.

The jars to receive the chunks are placed on the other end of the table, within reach of the person filling them with extracted honey.

Fig. 5. Mrs. Kalthoff is filling jars with extracted honey. Practically all the jars are filled by her. We packed 41,000 pounds of chunk honey in 1955.
A beekeeper is blessed who has a wife that loves to help him with the bee and honey business.

XUM

Removal of Honey from Colonies

by RALPH L. PARKER
Kansas State College

SURPLUS HONEY is removed from the colonies as soon as the honey is fully ripened and sufficiently capped. Under these conditions the honey will not ferment, as a general rule, when removed from the colonies. Under certain high humidity conditions with a rapid nectar flow, bees many times will cap unripe or "green" honey before the proper time. This usually is because the beekeeper does not provide sufficient super room for ripening and storage during a rapid nectar flow. This applies to comb honey, chunk honey, or extracted honey production. In comb honey, the capping should be complete except for a few cells across the bottom. For extracting, the honey may be ¾ to ⅞ capped at the time of removal for extraction. It is, however, better to wait for the honey to be fully capped before removing.

Bee Escape Method

There are several ways of getting bees out of supers. If one has only a few colonies, a bee escape may be used in the opening in the inner cover at the time of honey removal, if the honey is fully capped. During hot weather, a special bee-escape board may be built, using screen in place of the boards of the inner cover. A strip of board in the middle will be necessary for holding the bee escape, with screened portions on either side.

The bee escape is placed on the colony the day before honey removal. The colony is dismantled to the point of demarcation or split for honey removal. The supers to be removed are placed on top of the bee-escape board with the rim uppermost. During the warm weather the bees will go to the brood nest or go below the bee-escape board to carry on the work of the colony. Usually 24 hours is sufficient time for such bee removal under normal conditions. If the queen is in the honey supers, she will be trapped above bee escape. At the time of honey removal, a center comb from each super should be examined to be sure a queen is not removed from the colony. There may be a few bees left in each super, and these can be removed easily or will fly out on handling. Drones in the supers also will be trapped above the bee escape, since they are too large to go through it.

Shade

During hot weather, ventilated shade is necessary for colonies while honey is being removed by the bee-escape inner-cover method. At such a time, if combs in supers without bees to ventilate them are not protected from excessive heat, they become softened and break, releasing the honey. Old boards, pieces of metal, or other materials may be used to produce shade with one and one-half inches to two inches of air space between the outer cover and shade boards.

Brushing

If supers of honey are removed at the time of examination, the bees may be brushed from the combs into the brood nest. A brush may be obtained easily by gathering a handful of leafy, stiff weeds. An empty hive body or super is necessary for the transference of the combs as they are brushed clean of bees. As one finishes one super, an

empty super is available. If there is no nectar flow prevalent at the time, it will be necessary to provide covers to protect the removed honey from robber bees. Prevent robbing at all times.

Smoking Down

Smoking bees down through the supers where there is some uncapped honey, if the smoking is overdone or severe, may taint the honey. Some beekeepers use this method of driving the bees down, but experience is necessary to learn how much smoke should be applied. Small holes in the cappings may be chewed by the bees during the smoking process.

Carbolic Acid Method

Carbolic acid is used for driving bees out of supers. This requires special equipment, a carbolic acid cover. This cover is a skeleton framework which has two or three wooden crossbars to support the burlap or other cloth on which the carbolic-acid solution is sprinkled or placed. After the cloth has been fastened to this frame, a piece of tin or galvanized sheet iron can be fitted over the top and the outside painted black. This black surface will absorb the heat rays of the sun. USE ONLY TECHNICALLY OR CHEMICALLY PURE CARBOLIC ACID CRYSTALS. Dilute the melted crystals with 15 per cent water by volume. This solution when placed in a bottle with an aluminum clothes sprinkler nozzle is applied easily to the special carbolic acid cover without getting on one's hands. Never wet the cloth insert of the cover to the extent that it drips. Wet only enough to produce thorough dampening. Do not use crude carbolic acid as a substitute for the pure, since the crude product will taint honey. The carbolic acid solution treatment should be used only when the outside temperature is 85 degrees F. or above, and preferably when the sun is shining. Under these conditions the carbolic acid cover should not remain on the colonies longer than three to five minutes. It will require a little experience in the use of this special equipment to know when the bees are out of the supers. To gain the experience necessary, at short intervals within the five-minute period, examine the one or two supers to be removed. If the carbolic acid cover is left on too long, the gas will taint the honey, and buyers will not accept such honey.

CAUTION

At all times, in handling carbolic acid, be careful not to let it come in contact with the skin; if it does, it should be washed off immediately with a saturated solution of baking soda and water. If baking soda is not available at the immediate time, water will offset the injury or burning of the carbolic acid to some extent. Too strong a solution or too long an exposure to carbolic acid fumes also injure bees.

Chunk Comb and Extracted in One Super

PAUL M. SUMMERS, Corryton, Texas

FOR MY customers I need honey in the ratio of about 40 per cent chunk comb and 60 per cent extracted. I get both from the same shallow super in a set-up which seems to be new around here, if not elsewhere. All supers have Stoller spacers to give nine frames of which four frames are for chunk comb and five are for extracted. Counting from either side, all odd numbered frames (1, 3, 5, 7, and 9) are for extracted and all even numbered frames (2, 4, 6, and 8) are for chunk comb. Medium brood foundation with either vertical or horizontal wiring is used for the extracting frames and thin super foundation for the comb frames.

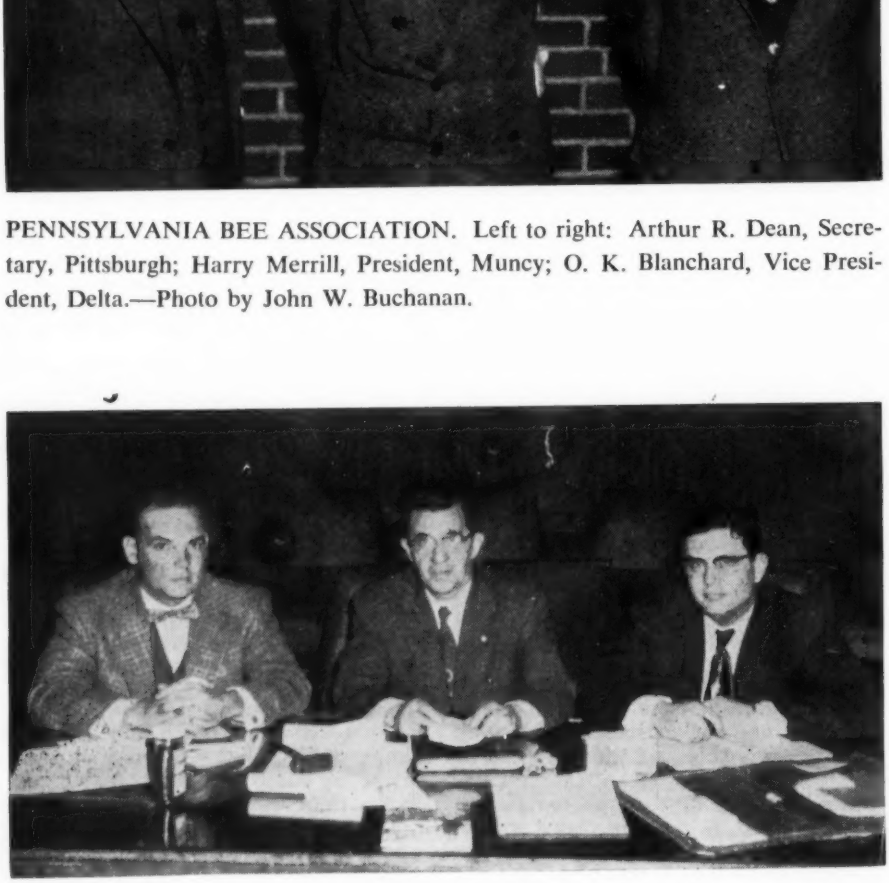
After you get a supply of drawn comb extracting frames the frame arrangement in each super will of course have each of the chunk comb frames with foundation between drawn extracting frames. Sometimes the bees will draw out further the comb of the extracting frames before the chunk comb foundation is fully drawn, which gives a fatter extracting comb and a thinner chunk comb. That is not serious as the extracting comb can always be cut back to the right width when extracting.

I use these supers on all colonies whether strong or weak, giving them as needed. This set-up eliminates the problem of selecting colonies for comb or extracted production and seems to have some value in swarm control.

XUM

Bee Club Celebrities

PENNSYLVANIA BEE ASSOCIATION. Left to right: Arthur R. Dean, Secretary, Pittsburgh; Harry Merrill, President, Muncy; O. K. Blanchard, Vice President, Delta.—Photo by John W. Buchanan.



OHIO BEE ASSOCIATION. Left to right: Tom Keesee, Vice President, New London; Harry Vandenberg, President, La Grange; Robert Collier, Sec., Deshler.

Live and Learn

by Propolis Pete

EVERY YEAR I manage to come up with at least one screwball colony that poses problems I never met before. This year is no exception.

Because of the damp and cold spring that we had, I couldn't get at my colonies until way late in the season. Then a day came along that wasn't good bee weather, but which was mild enough to make it possible for a snap inspection to see who needed help. I went down the line just looking at the first frame in the top body, crowding the rest of the frames over and then looking at the middle frame to check the brood. If the first frame was empty I put on a Boardman feeder, and if the brood was scanty or scattered I just closed them up and hoped.

Well, when I came to this colony, I found the first frame solid with honey. So far so good. When I pulled out the middle frame I saw a rare sight. A perfect brood comb. Honey in the corners and along the end bars. In the center was a perfect oval of sealed brood without a skip. You seldom see a comb like that. Generally, even with the best queen, there will be a cell that held honey or pollen when the queen was working that territory so she didn't lay in it. When the cell was empty, she was elsewhere. With a good queen there will be a few such skips. With a poor queen there will be many, either because she was careless, or because she was shooting blanks.

Anyhow, this colony was in such doggoned good shape that I marked it to receive special attention. I had visions of a record-breaking colony if the weather would give me half a break, and the bees didn't get ideas that they could do better a half a mile or so away from there.

About two weeks later I got a good day, and the first hive I looked at was this one. What did I find? Vast open spaces where the brood had been, and no eggs or young larvae anywhere to be seen. The bees acted like a normal queenright colony, so I went through the bottom body to see if by some queer quirk our friend had gone downstairs instead of staying up where it was nice and warm. The minute I took off the top body, the bees let out the roar that is their way of hollering for help. There was not the sign of a queen anywhere, so I figured that it was another one of those things.

I sent for a queen and got her in a couple of days, thanks to air mail. When I opened the hive to introduce her, the grand lament started, but to make sure there wasn't a lazy queen in there I looked all through. Not a sign. When I touched the mailing cage to the top bars of the frames, it was touching to see the way they started their march and gratifying to hear the hallelujah chorus. Just to play it safe I left the candy in the end hole even though I was tempted to just let her run in with them. I waited a week to let her get going good before disturbing them, and opened the hive to see how she was doing.

There was nothing but nice shiny cells waiting for a queen to lay in. Now sometimes it takes a little more time for a queen to get going, so I put up with my disappointment and closed up the hive again for a couple of days. Waited three days and looked again. No sign of brood, but the bees acted like everything was O. K. with them. I don't think that I missed a bee in the examination to check and see what was going on, but couldn't dig up anything that even resembled a queen. Now I really didn't have a colony that could spare a frame of brood, but I was curious. So I took a frame of eggs and put it in this colony. As a rule the bees will build supersedure cells in a case like that, but these bees didn't. They fed and capped the brood in that frame, but that is as far as they would go. They act as though everything is hunky-dory with them, but they won't last long with no brood coming along. I am not going to throw another buck and a half down the drain for another pedigreed queen. What puzzles me is that they are recognizing something in that hive as a queen, but what it is I don't know. It definitely is not a queen, because I really did go through that colony looking for anything that even resembled a queen. There are no laying workers. I

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Editorials

The International Beekeeping Congress

THE INTERNATIONAL BEEKEEPING CONGRESS will be held in Vienna, Austria, August 12 to 18. Beekeepers from all countries have a cordial invitation to attend. A rich program is in the making, consisting of papers by internationally famed authorities on various phases of beekeeping. There will be an opportunity for sight-seeing trips on the side. Those who can should take advantage of this opportunity to become better acquainted with beekeeping over the world.

Revision of Comb Honey Grades

THE LAST REQUIREMENTS for grading comb honey were issued by United States Department of Agriculture, Bureau of Entomology and Agricultural Economics, in August 1933. Most producers of section comb and cut comb honey are familiar with these requirements.

We are advised by the Processed Products Standardization and Inspection Branch, Fruit and Vegetable Division of United States Department of Agriculture that the proposed revision of United States standards for grades of comb honey has appeared in the April 24, 1956 issue of Federal Register.

Beekeepers interested in producing comb, chunk, or cut comb honey and grading of same should secure a copy of the revision from the foregoing address and voice their approval or disapproval at an early date, or before Dec. 31, 1956.

During the comb honey era, 1876-1906, which preceded the present extracted honey era, a large percentage of the honey produced was comb. At present comparatively little comb honey is produced as compared with what was produced at the close of last century. There is still a demand for good comb honey and more of it should be produced than at present.

Honey Goes to National Home Economists Meeting

"THE FEDERATION, in cooperation with the American Honey Institute and the National Honey Packers and Dealers Association, sponsored a booth at the American Home Economics Convention held on June 26-29 in the National Guard Armory at Washington, D. C.

"The Institute will furnish the material requested by those registering (recipes, leaflets, etc.) and the Honey Packers and Dealers will share on a 50/50 basis the expense incurred up to a maximum of $750. Total estimated expense for this venture at the present time is $2,000.

"We hope that through this booth honey will be brought to the attention of many of the Home Economists who have not previously used honey in their work. And that this will also be just the beginning of many activities which can be worked out through the cooperation of the Federation, the Packers and Dealers Association and the Institute, that could not be undertaken by one organization alone because of the expense involved.

"Ray Reed, Vice-President, is Chairman of the Arrangements Committee for the booth and is busy developing plans that will make the booth a credit to the honey industry and a benefit to both Producers and Packers."—Taken from Federation News Letter, May-June 1956 issue.

Honeybees in Towns and Cities

THE RAPID increase in population throughout the country and the overflow of cities and towns into rural areas are creating a problem for novice or backlot beekeepers.

We have in mind areas adjoining cities nearby, that ten years ago were not built up, and where there was a considerable amount of bee pasture such as clovers, goldenrod, and asters available for bees. At present these areas are being filled up with dwellings and other buildings. In some instances, backlot beekeepers have been obliged to move their bees out to the country.

Some people are deathly afraid of bees, or think they are and if a barefooted child happens to step on a bee that is taking nectar from a head of clover or a dandelion, and is stung, the parents may call the city council in an effort to have the owner of the hives of bees nearby, remove them outside the city limits. Obviously, this is the wrong attitude to take because bees are needed in towns and cities to pollinate fruits and vegetables. There is actually a shortage of bees at present to perform the necessary pollination service. Furthermore, the backlot beekeeper derives a considerable amount of pleasure and some profit from his bees that gather nectar which would be lost if the bees were not there to gather it.

In some instances, beekeepers do mishandle their bees, opening hives too early in the morning and too late in the evening, or on a cool day when most of the bees are at home. Hives should be opened on a warm day when bees are working well. Occasionally a beekeeper may leave a comb of honey outside uncovered during a dearth of nectar. This gets the bees stirred up and robbing and they may sting neighbors. Complaints from neighbors are justified in such a case.

It would seem that each county association should have a committee to help or teach beginners to handle their bees properly, thus avoiding any possible trouble that might occur. The proper handling of bees should be emphasized at bee meetings, especially for beginners.

Unfortunately, some strains of bees that are good workers and put up big crops of honey are rather vicious and hard to handle. It may be a little difficult to combine gentleness and vigor in bee breeding. However, breeders of bees should try to produce strains that are reasonably gentle to handle, especially for backlot beekeepers in towns and cities. Honeybees are needed in these areas.

Meeting Beekeeping Emergencies

IT WOULD appear that one extreme is likely to follow another. A poor honey season may follow a good one and visa versa. A dry spell may follow a wet one.

The spring of 1955 in this area was quite favorable for bees. It was the first time in some years that bees stored some surplus from spring sources. Swarming was quite prevalent.

This spring the weather during May was so cool and rainy that bees barely made a living, in fact, some colonies were on the verge of starvation during the last week in May and the first week in June. Colonies that had been left an adequate amount of honey consumed it. To make matters worse heavy rains made it impossible to drive into out-apiaries and sugar had to be carried in from roads.

The lesson to be learned is that beekeepers, especially those with out-apiaries, must try to be ready for any emergency that may arise. This may be easier said than done.

XUM

W. H. PURSER* tells how to

Handle the honey crop

A Method for Small Beekeepers

THE PLACE for extracting the honey should be selected before it is removed from the hives.

The bee-tight room should be at least 14 x 20 feet or even better, 300 square feet. A basement room with a concrete floor is suggested. This room should be equipped with an extractor, ample storage facilities (60-pound cans and a tank with a honey gate near the bottom for bottling), electric lights, hot and cold water, a large sink, a table (5 x 8 ft. x 20 in high) built from 2-inch thick material on which to mount the extractor and storage tanks, and a trough with two sections for uncapping and cutting comb honey.

This box or trough should have a slanting bottom made of aluminum with a hole in the lower end for catching honey drainings from cappings. The top section of this box should have a hardware cloth bottom to catch the cappings and particles of comb and for allowing the honey to drain onto the aluminum bottom.

Other necessary equipment includes an uncapping knife, strainer, a hive tool, some narrow tables for stacking empty honey jars and filled cases, a funnel for a bee escape through a window, and a large boiler for heating honey.

If a honey house is to be built it should be high enough at one end to be of the same level as a truck body. Having the floor on two elevations would also be an advantage.

* Assistant Entomologist, S. C. Exp. Station

Removing Honey from the Hive

Some use the carbolic acid method to remove surplus honey, sprinkling it on a cloth tacked to the inside of the hive cover which is put on top of a super or supers to be removed. Since there is some danger of tainting the flavor of honey, if the acid method is not used properly, we suggest beginners and back-lot beekeepers use the bee-escape board. An inner cover with a bee escape in the opening in the center is placed under a super of honey ready to come off. Usually the bees will leave the super and go down through the bee escape in less than two days. When using the bee-escape method, there should be no brood in the combs as bees will not leave the brood to go down through the bee escape.

Any unfinished frames may be concentrated and placed on good colonies of bees. Remove only honey from the yard that is suitable to market. If a good honey flow is still coming in it is wise to have some supers of foundation along and replace any frames of honey removed from partially-filled or filled supers.

The chunk-comb honey and honey for extracting should be separated as it is removed from the hives and so marked. Load the honey on the truck as it is removed from the hives and keep it covered with a canvas if there is any indication robbing might occur.

When the honey is carried into the packing plant and is not packed within

a period of 10 days it should be stacked as straight as possible to aid in fumigation. The comb honey to be cut should receive special attention as it must be clean, white, and free of pollen. It must also stay in storage until the other honey is extracted and settled, which requires several days, giving the wax moth a chance to get started. This honey should be fumigated with carbon disulphide. (Write to Gleanings in Bee Culture, Medina, Ohio, for FREE information on wax moth control.)

Extracting the Honey from Combs

The labor factor in extracting honey is not strenuous but requires some know-how and speed. Three people make a very balanced team to operate a four-frame extractor. One can do the uncapping, one the extracting, and the other can keep the supers of honey ready for the fellow who is doing the uncapping. He can also hand'e the frames after the honey is removed and take the honey from the extractor.

The person doing the uncapping should take precautions not to mash the cells. The uncapping knife should

Box or trough for catching honey drainings from cappings.

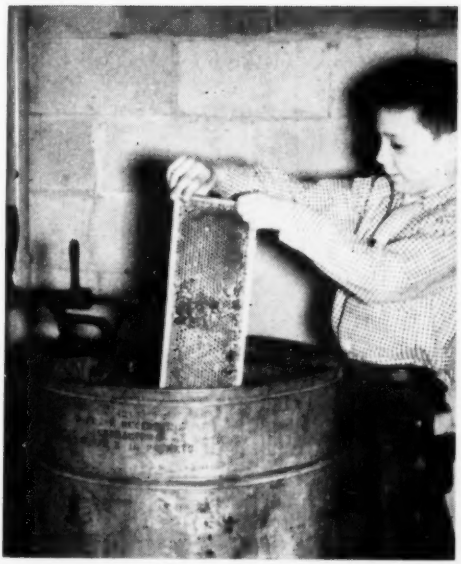
be sharp and the operator should hold the knife at an angle so as to carve the caps off the combs rather than mash them off. The caps should be cut as thin as possible to get the larger amount of honey from the frames into the extractor.

The operator of the extractor should take care that the extractor is clean. He should not turn the extractor too fast nor stop too suddenly as this could break the tender combs and render them unfit for use again. The combs should, however, be fairly clean of honey.

Running the honey from the extractor into 60-pound cans works very well. These cans do not color the honey. The honey should remain in these cans until ready to bottle (5 to 10 days at least). Three people should work at least 10 supers per hour.

Packing Honey

One of the first jobs in packing honey is to clean and label the jars.



Operating the extractor.

Dirty jars should be washed in clean, warm, soapy water, rinsed and dried before using.

When the extracted honey has settled (all foam on top) it is ready to bottle. Warm the full cans in warm water baths to aid in straining and bottling. Strain the honey through four thicknesses of cheese cloth or use a nylon hose. Take care not to get the honey over 140 degrees F. Sieves used for straining lubricating oil may be used for straining honey. If prevention of granulation is desired bring the temperature up to 140 degrees F.

The cut-comb honey should be cut with a warm, thin-bladed, sharp knife using a queen excluder as a foundation over the uncapping box. The pieces of comb should be cut in a systematic way to make every jar a similar finished pack.

The popular 2½-pound wide-mouth square jar is very easy to pack with comb honey. The more common practice in making this pack is to use two pieces the width and length of the jar and two pieces to brace them into position against the sides of the jar. The standard 4½-inch shallow frame of honey is the proper height for cutting to fill the 2½-pound jar. By using ten frames in the 10-frame standard supers the tiers of honey are thinner than when using 9 frames and are easier to pack.

There is a common practice in some areas to pack only a small piece of comb in the jars. The comb pack should run approximately 40 per cent comb honey. The pieces of comb should extend well down to the bottom of the jar.

Popular packs of honey.

Filling the jars with extracted honey.

Filling the jars with extracted honey over the comb honey is a tedious job, especially if the extracted honey is cold. The jar should not be filled brimming full of extracted honey as the honey will expand when it gets warm and run out. Filling the jar to the bottom of the neck is sufficient.

For packing extracted honey the one-pound jar is very popular. It is a good practice to pack all the dark honey in small, thin containers as this will tend to make the honey look lighter in color.

Only honey of good quality, flavor, and color should be packed for table use. Poor grades of honey on the grocery shelf will cause poor sales, hence is a stumbling block to the sale of good honey.

Marketing Honey

Good substantial honey markets must be established in order to sell

(Continued on page 445)

When It's Hot

MRS. BENJ. NIELSEN
Aurora, Nebraska

Honey corn flakes muffins and crisply chilled salads are grand hot-weather treats.—Photo courtesy Kellogg Co.

NOW THAT it's summer, and the lure of the garden and patio grows stronger, there are more reasons than ever for cutting down on the indoor time spent in preparing family meals. And, altho we are tempted more and more to serve cold, make-ahead, or on-the-moment kinds of foods, we should have at least one hot dish for each meal. Muffins, honey-way ones, of course, are a grand way to introduce this "warm" note. Dry ingredients may be combined and stored so that muffins may be made in a twinkling with a few strokes, after adding liquid ingredients.

Good muffins are light, fluffy, and tender, fine textured and golden brown. Tops are well rounded with a pebbly surface. (Flat ones and your oven's too slow!) Knobs and peaks on tops and long holes or tunnels are caused by over mixing. Stir the liquid ingredients into the dry ingredients just enough to dampen all the flour, leaving batter rough and lumpy. Twelve to fifteen stirs are usually enough motion.

Honey Corn Flakes Muffins

Two and ¼ cups sifted flour, 4 teaspoons baking powder, ½ teaspoon salt, 2 cups corn flakes, 1 egg, slightly beaten, 1 cup milk, ¼ cup honey, and ¼ cup shortening, melted.

Sift together flour, baking powder, and salt. Crush corn flakes into fine crumbs; mix with sifted dry ingredients. Combine egg, milk, and honey. Add to dry ingredients together with shortening, stirring only until combined. Fill greased muffin pans two-thirds full. Bake in hot oven, 425 degrees F., about 20 minutes. Yield: 12 muffins, 2½ inches in diameter.

Honey Muffins

Two cups flour, 3 teaspoons baking powder, 1½ teaspoons salt, ⅓ cup shortening, ¼ cup honey, 1 egg, beaten, and 1 cup milk.

Sift flour, baking powder, and salt into mixing bowl. Cut in shortening until mixture is as fine as meal. Combine honey, egg, and milk. Turn liquids into dry ingredients and stir until all flour is dampened. Fill well-greased muffin tins two-thirds full. Bake in hot oven, 425 degrees F., 20 to 25 minutes.

Variations

Add 1 cup apples, pared and finely chopped, to batter. Place in muffin tins and sprinkle with mixture of 2 tablespoons sugar and ¼ teaspoon cinnamon.

Add ½ cup grated cheese and ⅛ teaspoon paprika to batter. Grand salad accompaniment.

Honey Banana Bran Muffins

One cup sifted flour, ¾ teaspoon baking soda, ½ teaspoon salt, 2 tablespoons shortening, ¼ cup honey, 1 egg, well beaten, 2 tablespoons sour milk, 2 cups thinly sliced bananas, and 1 cup bran.

Sift flour, soda, and salt together. Cream shortening and honey until fluffy; add egg, milk, and bananas. Mix and add bran. Let stand until bran softens. Add sifted dry ingredients, stirring only enough to dampen all the flour. Place in greased muffin pans and bake in moderate oven, 375 degrees F., 35 minutes.

FROM Foreign LANDS

Translated and Edited by Erika Barth

Honey as a Surgical Dressing

IN THE LAST issue, Gleanings published the first part of an excellent paper on the use of honey for burns. Here is the last part of this interesting report from the BRITISH BEE JOURNAL.

"In some cases the application of honey causes a momentary stinging or burning but in only one case to date has its use been associated with any pain. In this case each application of honey caused pain sufficient to require administration of aspirin or codeine, the pain lasting for about an hour. No reason could be found for this pain and eventually the use of honey was discontinued. After an interval of 10 to 14 days honey dressings were resumed and proved pain-free. Further inquiries then seemed to show that the honey used for the original dressings was a table preparation containing honey but not consisting of pure honey, whereas on the second occasion pure honey was supplied. It may well be, therefore, that the pain was due to a substance other than honey, the presence of which we were not aware at the time.

"In one case of carcinoma of the breast treated by radial excision, applications of honey were subsequently used on account of localized sloughing of the skin flaps. This sloughing gave rise to an area of ulceration just in front of the axilla from which the sloughs were very slow to separate. The untreated area formed a comparatively deep cavity and granulated honey was packed into this cavity daily and covered with dry gauze. From that time the cavity cleaned quickly and healing progressed much more rapidly than had previously been the case.

"A few cases of varicose ulcer have also been treated by applications of honey while the patients have been in a hospital for operation on gynaecological conditions. In these cases also the cleansing effect of the dressing has been satisfactory but complete healing did not occur while the patients were under observation.

"It seems likely that honey could be used satisfactorily to hasten the cleaning of burns preliminary to skin grafting but of this I have no experience.

"I have every reason to think that this very simple substance provides one answer to the problem of treatment of many infected wounds. The advantages claimed for it are that it is non-irritating, non-toxic, self-sterile, bactericidal, nutritive, cheap, easily obtained, easily applied and above all, effective."

British Bee Journal. Dec. 29, 1955.

Facts on Beeswax

TANGANYIKA, AFRICA, is the second largest producer of beeswax, exceeded only by the United States, according to Francis G. Smith, Beeswax Officer of the Tanganyika Forestry Department. Portuguese West Africa is third, exporting an average of 150 tons per year to the United Kingdom. Tanganyika supplies about one-third of Britain's normal beeswax requirements.

While some of the African countries are large producers of beeswax, the wax itself contains large quantities of propolis and has a very strong aromatic odor. The tensile strength and the melting point in these African waxes is also lower than domestic U. S. beeswax, and as a result, comb foundation made from African waxes does not produce the strongest finished foundation. The large amount of propolis in the African beeswax produces candles that smoke a lot, and therefore this beeswax does not command the best prices on the

(Continued on page 443)

Let's Talk about Honey Plants

HARVEY B. LOVELL,
University of Louisville

White brush (**Aloysia ligustrina**) is a tall slender shrub common in west Texas where a great deal of surplus honey is gathered. It grows in semi-desert areas in regions too dry and barren for almost any other species. The small white flowers are in long spikes and the pale, brittle branches die back during dry spells.

Howard Hatch of Marathon, Texas, wrote me that white brush blooms from June to December. It blooms nine days after a rain of three-fourths or more inches and the flowering period lasts from four to fifteen days depending upon the amount of the rainfall. Although there are thousands of acres of white brush near his apiaries, it is hard to get the honey pure because a great variety of desert plants, both herbs and shrubs, also bloom at the same time, and the bees nearly always gather some other kinds with it.

White brush
(Aloysia ligustrina)

The honey from white brush is very white with a very heavy body and a mild, delicate flavor. Sometimes in the dry desert air, the honey is reduced to only 12 to 13 per cent water. It granulates very quickly.

In the Big Bend Country of west Texas the author accompanied the Hatch Brothers to two of their desert apiaries which were located in great fields of white brush. The shrubs were just starting to bloom following a heavy rain a week before, a rain so heavy that it had nearly flooded the Hatch Ranch and had roared across the low points in the highway. Later the brothers sent me a sample of the honey made at that time. It was so thick that it would barely pour but it was water white with an interesting flavor.

H. B. Parks highly recommends this shrub as an ornamental, because it is easy to transplant, can be trimmed to shape and can be made to bloom at any time by merely watering it thoroughly. As the shrub, unlike most desert plants, bears no thorns it makes a good hedge plant.

The Southeastern Indiana Beekeepers' Association met at the home of Percy Conaway, Dillsboro, Indiana, in May. His home nestled in a valley with steep hills rising behind his house and there on the hillside on land too steep to be farmed perched an apiary of 100 colonies in three rows. Last season (1955) he made 300 pounds per hive (from all but a few weak colonies) chiefly from clover, although he has counted 250 basswood trees within flying distance of his apiary.

One section of his yard is completely covered with horehound (**Marrubium vulgare**), a honey plant which is frequently abundant in the southwest but is not usually common in this part of the country. It is a mint with small whitish flowers and peculiar oval, rough leaves. Where abundant it often produces a surplus of strong amber honey with a flavor resembling horehound candy. When his honey is

(Continued on page 447)

XUM

Experiments in Mechanized Uncapping

Conducted by PHILIP BISHOP, Sackville, N. B.

(Development of a Low R.P.M. Cutting Head)

PART OF THE satisfaction I have had as a beekeeper has come from making various gadgets to help in my work. For several years I have been working on an uncapping machine. This machine has rotary cutting heads. I used this principle largely because I have no knowledge of other mechanical means of fully regulating cutting depth without damage to the frame. The machine consists of the usual coordinated units — comb carriage and power-driven cutting heads.

The comb carriage, operated by hand crank, was designed to allow experiments in feeding procedures. The combs may be placed in the carriage with top bars up or down and may be uncapped as they move upward or downward. This enables me to study the effect of the cutting thrust in relation to the position and movement of the comb.

Two cutting head arbors were each mounted with two spiral rows of non-swinging, chipping blades. There were 32 of these 9/16" x 1/16" blades in each spiral. The dimensions of the complete assembly were 16¾" x 4". The arbor assembly included also three discs, one at each end and one in the center. The purpose of these discs was to roll the cutter heads away from the top and bottom bars. The cutter-head bearings were mounted on swinging arms and held to cutting depth by light spring tension.

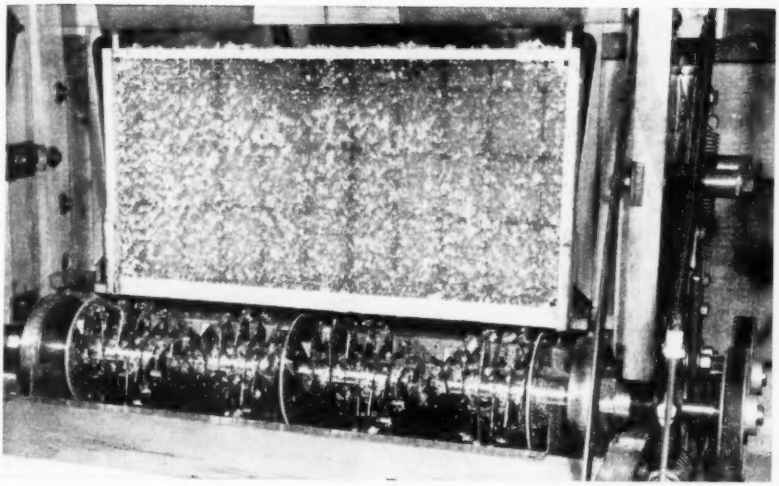
The first tests with this machine showed that the cutting heads had one serious fault. They ground the wax cappings so fine that they remained suspended in the honey and it was impossible to remove them by ordinary means. Since we do not heat the honey after the combs are removed from the hot room where they are stored at 90°F., we may have unusual problems in clarification. Reduced cutter head speed which, in our first test, we tried as low as 650 r.p.m. seemed to help but not cure the difficulty.

1. Individual Cutter. L-shaped chippers welded to cutter arms and bent in opposite directions cut adjoining tracks and chip out one capping flake in each revolution.

I could only guess as to the solution of the problem. The only definite clue referred to cutter-head speed. Maybe cutters specially designed for slow speed cutting would be the answer. Just what sort of design involved another guess. I decided to try making my chipping blades much thinner and to reduce the width of the cutting edge from 9/16" to 9/32". Without increasing the number of chippers, this left just enough cutting area to complete the cut across the full length of the comb. These changes raised some hopes of a freer working cutter head that would have a reduced grinding action on the wax and that would possibly operate at very low speed.

Picture No. 1 shows an individual cutter of this design. The chipping knives fixed at each end are of thin steel .030" thick. Picture No. 2 shows 32 of these cutters assembled on one of the arbor shafts in the uncapping machine.

The first tests with this cutting set-



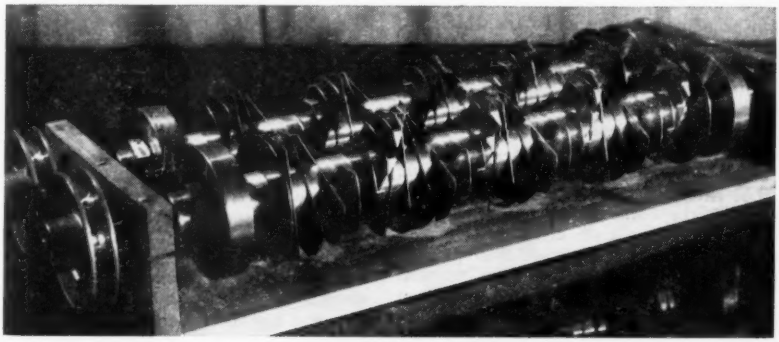
2. Assembly of 32 cutters on arbor shaft. Three discs extend 1/32-inch beyond chippers to protect frame and to provide thrust for rolling cutter heads apart.

up were made with the arbor shafts turning at 315 r.p.m. This gave a lineal knife speed of about 325 feet per minute. At this speed everything seemed to work well and the cappings came off the combs in coarse chippings which floated in clear honey. It was most pleasing to find that these cappings would settle out of the honey quickly.

I then experimented with higher arbor shaft speeds and found that the cappings were ground finer as the speed was increased. In other words, there was a maximum cutter speed of about 325 lineal feet per minute above which cappings became small enough to create a settling and straining problem. The importance of the cutter speed factor has been established as far as we are concerned by two seasons of satisfactory operation.

Following are some other points of interest that developed from my experiments:

1. The rotation thrust of the cutting heads should be toward the top bars of the combs. This is partly because it is



3. Redesigned cutting heads. These use same principle shown in No. 2 but are improved in design and made of stainless steel. Cutter arm and chippers are made in one piece and embody a small section of protecting disc. Spiral arrangement of these disc sections gives more adequate protection than the three complete discs shown in No. 2.

XUM

in the direction of firmest support. But more important is the fact that there is a tendency for the cutters to bend the outer edges of the cell walls. When this bending is toward the top bar it helps in the extracting process; when it is toward the bottom bar it hinders the extracting process.

2. The movement of the combs as they are uncapped should be in the direction of the cutting thrust. This avoids excessive grinding of wax and honey and reduces comb breakage to a minimum. It is contrary to usual cutting procedure; but honey is highly viscous and will not clear the cutters as freely as dry, non-viscous substances.

3. Applying the two foregoing principles, top bars should lead as the combs enter between the cutter heads for uncapping. Picture No. 2 shows that with a machine having a vertical carriage, moving downward for uncapping (such as I have) the combs should be introduced upside down.

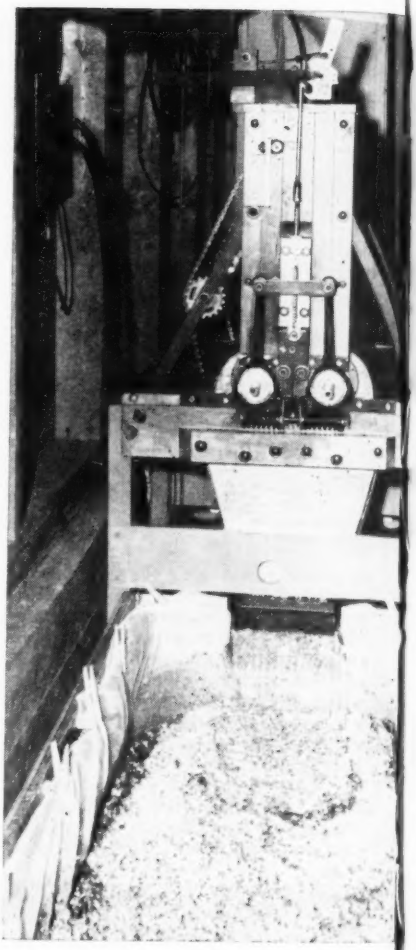
Two features which might discourage general use of my machine are:

1. The length of the cutting span is fixed at 16¾" — about the correct length for standard frames. This provides proper leeway for the cutting head to enter lengthwise between the end bars of the frames. But, if the frames have gross variations in this dimension, the uncapping would be imperfect. Variations in frame depth, on the other hand, create no problem as the swing mounted cutting heads are designed to roll away from top and bottom bars. Metal spacers on either top or bottom bars would cause damage. Any spacing device would have to be placed on the end bars which are outside the path of the cutters.

2. The hand-cranked feeding apparatus does not utilize the full capacity of the cutting heads. A speed of four combs per minute can be maintained with this hand feed but the cutter heads could handle more than double that number. A feeding system to handle the combs in steady succession is needed for full efficiency in any power-driven uncapper of this type.

However, the machine has worked well in our extracting set-up and is a wonderful labor-lightener and time-saver. How it would fit into a different situation or in other hands, I am not prepared to say. I know that I have not solved **all** the problems of mechanized uncapping; but I hope that my efforts will stimulate further work in this field. I am indebted to those who blazed the trail and this work should continue. Seldom has a mechanical aid so much needed been so slow to materialize in a generally acceptable form.

Sackville, N. B.



4. End view of uncapping machine showing delivery of cappings into straining and setting tank.

American Honey Institute News Notes

HARRIETT M. GRACE, Director

Commercial State Bank Building, Madison 3, Wisconsin

WITH THE stock market rolling up, then down, with the recent boom slowing, and the investor becoming wary, it is time for the Honey industry to plan more and better promotion of its product. Economists predict a business pickup in late 1956.

Will we honey producers continue to be just beekeepers? Or will we get as busy as our bees? Will we get in on the late 1956 rally said to come?

Promotion, as we know, is telling our community, our locality, our county, our state, and if we produce in large quantities, our nation about our honey products.

It is not enough to tell our world about the product but, if we would increase our sales, we must tell new ways of using it.

How can we honey producers promote our products?

Let's assume we are small producers and that the area we sell to is small. What can we beekeepers do?

We can talk Honey by having advertising painted on our trucks. Permanent signs on our land (if no law against it) can tell people driving by that we have honey for sale.

Make Honey Displays

We can talk honey silently by seeking permission for honey displays of club officers, convention chairmen, managers of groceries who handle our honey, candy shops whose kitchens use our product as a sweetener for its candies, or meat departments if the packer has used honey in processing his cold meats.

Honey displays at the salad dressing counter with a poster that honey added to the salad dressing makes the guests ask for the recipe, or in bakeries, particularly if we give them a "sample can", to use in their cake of the week—the Honey cake—will catch the customer's attention.

Learn from the high school home economics teacher when the high school girls will be baking cakes. Give the class a sample can of honey when the girls are learning the art of cake baking. That can of honey will even "talk" to the parents when the girls relate at the supper table their experiences in baking a cake different from those mother makes.

Girls who baked the best cakes might be given the honor of giving away ounce size honey samples to customers in the bakery, candy kitchen, or the grocery store giving space for displays. One of the girls might write the story of the cake baking and the exhibits for the school and local papers—a good news story and excellent promotion.

Advertisements in the local paper will "talk" for the small honey producer as well as for the larger one. The latter may find it profitable to seek out an advertising agency to plan, write, and place his advertising in trade, business papers, or women's service magazines if his honey trade warrants expenditure for "national" advertising.

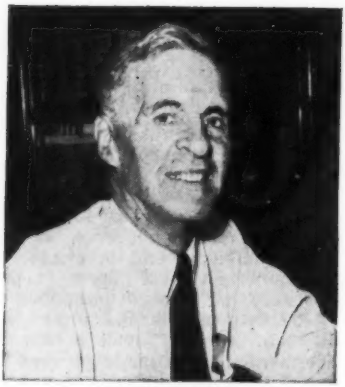
Attractive containers, colorful labels, appealing trade-marks and clever slogans will "talk" for the beekeeper.

Yes, Honey can talk for us beekeepers and soon we will be busier than our bees whether the stock market rolls up or down in late 1956.

"Madam, how fresh do you want it?"

A Talk to Beekeepers

by M. J. Deyell



Jack Deyell

Manipulating Hives of Bees

The Why, When, and How of It

THERE APPEAR to be differences of opinion as to why, when, and how hives of bees should be manipulated or handled. As our country becomes more thickly populated, especially the suburban areas, it is going to be increasingly necessary to have hives of bees properly located and to manipulate the bees intelligently, in order to avoid having the bees cause any disturbance among neighbors or pedestrians.

What brings this matter to my special attention at the present time is the fact that I attended a court hearing in a nearby city recently that had to do with hives of bees that were said to be a nuisance in a certain neighborhood. As a matter of fact, I was drafted as a witness for the defendant. It was up to the plaintiff to prove that the bees that were alleged to be a nuisance actually were a nuisance and that they came from the hives of the beekeeper who had a few hives on a lot nearby.

It would be rather difficult for the attorney of the plaintiff to definitely prove that the bees that were accused of being a nuisance actually came from the hives of the defendant. Swarms of bees, also bees leaving the hives for nectar and pollen may fly quite a distance.

It is a fact, however, that in some instances backlot beekeepers have used poor judgement in selecting the time for manipulating their hives, or, perhaps have left a comb of honey in the open during a dearth of nectar which resulted in getting the bees stirred up so that they would sting some people in the neighborhood. Such an occurrence is unfortunate for our industry because bees are actually needed in urban and suburban areas to pollinate fruits and vegetables. Also, backlot or hobby beekeepers can derive both pleasure and profit from their bees.

It would seem that a talk on the **why, when,** and **how** of manipulating hives of bees is in order.

Why Manipulate Hives

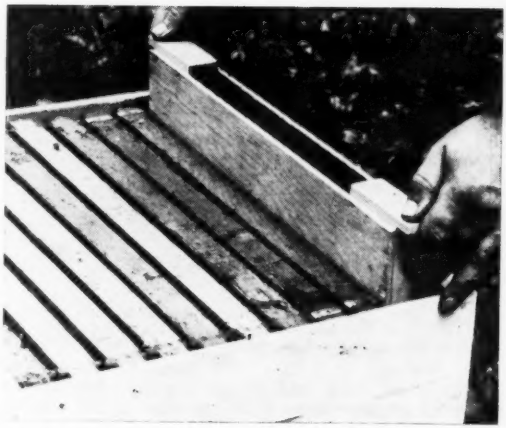
Obviously the main reason is to determine the condition of the colonies in order that intelligent management may be applied. The beekeeper can tell something about what is going on inside of the hive by entrance diagnosis. However, colonies of bees should be examined periodically, especially during the early part of the major honey flow, to detect possible causes of swarming and to determine whether or not more supers are needed.

It is necessary also to be on the lookout for brood diseases, especially American foulbrood.

Beginners who are new at the business may manipulate their hives too often. Someone has said that a beekeeper who imagines that he has to examine his hives of bees every day, should have one hive to play with and thus avoid opening up all of his hives too often.

When to Manipulate Hives

Hives should be examined during a warm day, preferably around the middle of the day when bees are flying well and gathering nectar and pollen. The main advantage in opening a hive at such a time is that a large percentage of the bees are in the fields and it is then possible to examine the combs more easily. Furthermore, bees do not



Bees do need to be fed at times and the division board feeder is good, because it puts the syrup just where it is needed.

appear to resent being handled on a warm day when they are working well.

Never open hives when the weather is cool, or early in the morning or late in the day. In some instances it may be necessary to open some hives on a cool day to supply honey or sugar syrup if the bees are at the point of starvation.

An Unforgettable Experience

Some years ago while keeping bees commercially in northern Michigan I walked through my apiary on a cool morning, just after the bees had been storing some surplus honey from buckwheat. I was wearing a red sweater and had my bee veil on, although it was not fastened too securely. I carried a bee smoker, although it was not going too well. As I approached a populous colony I very foolishly removed the hive cover. In an instant those bees boiled out of the top of the hive as well as the entrance attacking me in mass formation covering my clothing from head to foot, crawling up my pant legs, crowding in under my bee veil, stinging me unmercifully. My smoker was of no avail. A retreat seemed in order so I ran to the side of the apiary to get under the cover of an evergreen tree that had branches almost touching the ground. I crawled around underneath the tree until most of the bees had left me.

I learned a lesson that has not been forgotten, namely, never open a populous colony of bees early in the morning, especially during or following a buckwheat honey flow unless you are well prepared with a bee smoker, a bee-proof bee veil, bee gloves, and an armor plate.

How to Manipulate a Hive

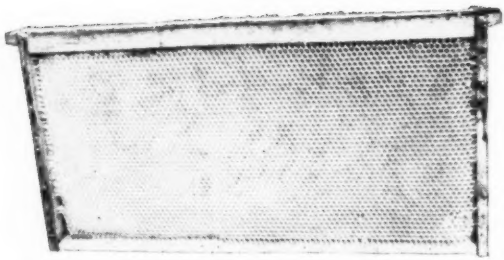
There is a right way and a wrong way of doing most of the things we do in life. Of course, there may be differences of opinion concerning the right way.

It seems necessary to wear a bee veil, to have a bee smoker, to use a hive tool or at least something comparable to it, and to have bee gloves, although some beekeepers do not wear bee gloves. I usually wear bee gloves to keep the propolis off my hands.

If a cloth bee veil is used it is a good idea to light your smoker before putting on the veil, because when lighting the smoker, the flames from the top of the smoker may come in contact with your veil and burn the front out of it. If you wear a metal screen veil it may be put on, if desired, before lighting the smoker.

It seems necessary to select smoker fuel that is easily lighted and burns well. There are many different kinds of fuel. Old burlap sacks rolled up and cut into lengths that fit the smoker barrel are quite satisfactory.

It is an advantage to light a small piece of paper, drop it to the bottom of the smoker, then place the burlap down in the smoker, holding it a short distance from the burning paper until the burlap is well lighted, puffing the smoker continuously until it is going well.



This comb consists of worker cells and such combs should be used in brood chambers to help insure the maximum amount of worker bees to gather the crop.

Choose clothing that is not highly colored and does not irritate the bees. A black felt hat is likely to collect many bee stings and should not be worn. We wear white coverall suits.

When ready to open a hive, stand at one side, preferably in such a position that the sun shines on your back. This means that if your hives are facing south, you stand on the east side of the hive in the forenoon, and on the west side in the afternoon. This gives the sun a chance to shine over your shoulders and down into the bottoms of the cells of the combs you are examining.

Open the hive by first removing the outer cover, then inserting the hive tool under one corner of the inner cover, and apply a little smoke through the opening. The inner cover is then removed and more smoke applied, but not too much.

Remove the outside comb nearest to you. It may be a little difficult at times to remove this comb, especially if the combs are propolized. The manner of handling the combs was described in a former talk this year.

It is an advantage, after removing the first comb, to stand it at the front corner of the hive in order that the queen, should she happen to be on this comb, may have a chance to crawl into the entrance of the hive should she leave the comb. If this comb should be stood at the back of the hive, the queen, if on the comb, might crawl off into the grass and be lost.

If the hive is examined during a honey flow while supers are on, the outer cover of the hive should be inverted, the supers piled on the cover so that they may rest crosswise on the rim and thus avoid killing bees, as would be the case if the supers were placed on the upper or flat surface of the outer cover.

The upper brood chamber, after being examined, should be placed on the queen excluder which should be put on top of the pile of supers. This prevents the queen, if she should be in the upper brood chamber, from going down into the combs of the supers.

When a colony is examined in the spring, before supers are put on, the upper brood chamber after being examined should be placed on the inverted outer cover so as to avoid killing bees on the bottoms of the frames. The bottom chamber may then be examined.

I may have mentioned in a former talk an experience I had while I was on vacation last summer. As I was driving along the road I noticed two men working bees in a small apiary a few rods from the highway. I always carry a bee veil so I put it on and walked over to where the men were working. It was a good thing I wore a veil as the bees were rather ornery that day.

The men were examining the colonies for disease and I noticed that after they examined the upper brood chamber and lifted it off, to get at the lower chamber, they placed this upper chamber on the upper side of the telescope cover. This meant killing quite a number of bees, unnecessarily. When I suggested that they turn the outer telescope cover upside down and place the upper chamber crosswise on the extended rim, they admitted that was a good idea but said that they had never thought of doing it that way. Whether or not they would put my suggestion into use after

I left, I do not know.

Don't Get Bees Stirred Up

At certain times of the year, especially between fruit bloom and clover flows in this area, bees are likely to start robbing when hives are checked. It seems to be difficult for some beekeepers, especially beginners, to detect first signs of robbing. When bees from other hives begin circling around the comb being examined and alighting on it and when bees try to get into small openings around the supers after they are put back on, it is time to quit manipulating hives for that day.

Certainly combs containing honey should be kept under cover, especially during a dearth of nectar. If the combs of honey are exposed bees would naturally start robbing honey from the combs and this would get all of the bees in the yard stirred up to such an extent that they might cause some trouble among neighbors nearby, especially in populated areas.

Record Tags

It seems essential to keep some sort of a record on each hive during the season. Some beekeepers may think they can remember the condition of each hive but with me this is impossible. I use a thin wooden tag about three inches by six inches, with a hole bored in one end, to hang on a small nail driven into the front of the hive.

At the beginning of the season I mark the year, 1956, on the upper right hand corner, then after each examination I mark the number of frames of brood which should indicate the strength of the colony, in abbreviated code, as for example, 6 f.b. If a queen is introduced this information is indicated on the tag.

It is an advantage also to number the hives on a front corner, with a heavy black crayon and to have these numbers appear on the upper corner of each tag, so that if the tags should be molested or blown off they may be returned to the hives to which they belong.

These wooden tags when filled up with records at the end of the season may be painted white and used again, year after year, indefinitely.

Bricks

I have found these exceedingly useful. An ordinary medium sized brick may be placed on the cover of each hive, primarily to keep the wind from blowing the cover off. Those of you who use the conventional hive taking an inner cover and outer telescope cover may know that a wind storm sometimes blows some covers off but the inner covers, being propolized to the hives, remain on.

There are other uses for bricks. When a colony is found to be in normal condition, the brick is placed flatwise on the center of the cover. If some abnormal condition prevails in the colony, the brick may be placed in a diagonal position so that the beekeeper when he returns to the apiary, may be able to tell, at a glance, which hives need attention.

During a honey flow, a colony that is needing a super, may have the brick pushed to the back part of the cover. When a load of supers is brought to the yard, the beekeeper can tell at a glance, without looking at the record tags, which colonies need supers. And so, intelligent use of bricks can save the beekeeper a lot of time, especially if he has a number of out-apiaries.

Naturally, each beekeeper has his own method of hive manipulation and apiary management and I am not saying that the methods I have developed are the best. You readers may have methods much better than mine.

I do believe, however, that if we beekeepers would take time to visit other beekeepers, especially during the honey flow, to learn how they handle their bees, we might pick up a few worthwhile ideas. In this connection it seems to be a fact that beekeeping, being a seasonable business, when a major honey flow does hit, all beekeepers in that area are so busy examining colonies, destroying queen cells, putting on supers, hiving swarms, etc., that they do not have time to visit other beekeepers to learn how they do things.

It does seem essential, however, that all beekeepers whether they be novices or experienced beekeepers, concentrate a little more on the **why, when,** and **how** of manipulating hives of bees.

• • •

"Rearing queen bees commercially can be a very exasperating occupation when seasonal conditions are unfavorable."—N. Z. Beekeeper, Nov. 1953.

News Reel

Left to right: Henry A. Schaefer, Osseo, Wisconsin, former president of the American Beekeeping Federation; Mr. Robert Banker, Cannon Falls, Minn., Secretary and Treasurer of the American Beekeeping Federation; Mr. Newman Lyle, Sheldon, Iowa; Mr. Millard Coggshall, President of the Florida State Beekeepers Association, commercial beekeeper in the central Florida area; Mr. Ralph Wadlow, Palmdale, Florida, former President of the Florida State Beekeepers' Association and commercial beekeeper in south Florida; and Mr. Frank Robinson of the Agricultural Experiment Station, Gainesville, Florida, Secretary and Treasurer of the Florida State Beekeepers Association.—Florida Bee Asso. Photo.

On the left: Mr. Gabriel G. Casper of Knickerbocker Honey Brokers, 99 Hudson St., New York City and on the right: Mr. Arthur Brew, Umatilla, Florida. Brew has about 1200 colonies in the central Florida area.—Florida Bee Asso. Photo.

Chester A. Brown of Kirkland, Washington standing beside a 13-story skyscraper colony in the foot hills of the Cascade Mountains near Carnation, Washington. This picture was taken at the close of a good fireweed honey flow which does not come every year but does hit periodically. Fireweed honey is very light in color and has a delicious flavor.—Photo by L. F. Baxter, Blair, Nebraska.

Paul F. Urrutia, Cordolia, Mexico, standing beside one of his hives which is placed on a metal standard in oil to keep ants away.

Just News

The **Midwestern Beekeepers' Association** will meet Sunday, July 8, at 2:30 p.m. with Mr. and Mrs. William Brite, Gardner, Kansas. The farm is located one mile east and two miles south of Gardner. Mr. Frank McLaughlin will lead the program discussion on: Removal of Supers; and Extracting. There will be a drawing prize and refreshments. Those interested in bees are welcome.—Mrs. William Brite, Sec.

The **Worcester County Bee Association of Massachusetts** will hold its next meeting at the Wallace Parker estate, at West Boylston, off Route 140. After a short business meeting there will be fun for everyone. Let's make it the biggest meeting yet. Our picnic supper will follow and prizes given away. Let us make a date for July 21 with Wally Parker. Come one, come all to the fun. —Adolph Rozenas, Pub. Chairman.

The next outdoor meeting of the recently organized **Norfolk County Beekeepers' Association, (Massachusetts)**, is scheduled for Saturday afternoon, July 7 at 2 o'clock at the home and apiaries of Mr. and Mrs. Allyn H. Fisher, 6 Washington St., Norwood. Members and visitors are asked to bring a picnic supper as well as chairs and tables. The supper will follow the regular business meeting and the inspection of the Club Hive. Soft drinks will be served by the host.—Betty Ann Fisher, Publicity.

The University of Illinois has accepted the invitation of the **Illinois State Beekeepers' Association** to serve as host to the annual mid-summer meeting. The date of the actual meeting has been scheduled as Sunday, July 22. However, an open house will be held at the University apiary on Saturday evening, July 21 as well as Sunday morning with a speaking program at the Illinois Union Building starting at 1:00 Sunday afternoon, with cafeteria service available there starting at 11:30. Those wishing further information, including reservations for Saturday night, should write to the Department of Entomology, 303 Harker Hall, Urbana, Illinois.

The **Cook-DuPage Beekeepers' Association** will hold its July 15, 1956 meeting at St. Mary's Seminary, Techny, Ill.

2:00-2:15 P.M. Welcoming Address —Seminary Representative

2:15-2:30 General Remarks —Bro. Frederick, Chief Apiarist Techny, Illinois

2:30-2:45 Experiences in Techny Apiaries—R. Stauble, Asst. Apiarist, Techny, Illinois

2:45-3:45 General Management of Colonies for Honey Flow—Dr. Mykola Haydak, Univ. of Minn.

3:45-4:15 General Remarks on Bee Conditions in Ill.—Carl Killion, Chief Apiarist, Paris, Ill.

4:15-4:45 Question Period Panel—Dr. Haydak, E. Meineke, R. Stauble (L. Baker, moderator)

Pot Luck Picnic Supper. Please bring a dish to pass. Coffee will be served. **Don't forget** your table service.—Mrs. Grace Sedlak, Sec.-Treas.

The July meeting of the **Suffolk County Bee Club** (Long Island) will be held in John Wernikowski's beevard, Route 25, Aquebogue, L. I. at 2:30 p. m. on Sunday, July 29th. In addition to a demonstraton on the handling of bees, labor-saving gadgets that are used by local beekeepers will be exhibited and demonstrated.

In August, members of the Suffolk County Bee Club plan to visit Fritz Kroger's beeyard. Mr. Kroger is a former president of the club who is now living at Livingston, New York. The regular monthly August meeting of the club will be held in the beeyard of John Frank, Patchogue Road, Holbrook, L. I. —H. D. Wells.

Beekeepers of **Northwestern Pennsylvania** will meet at Canadotha Lake, Mascessan Beach Park, on Wed., July 25. A picnic dinner is planned for 12:00 noon. Games for young and old. Speakers and prizes will also be on hand for the afternoon. There is plenty of room for all and entertainment for the children.—Zona Spring, Sec., Crawford Co. Beekeepers' Association.

Michigan Beekeepers' Summer Meeting will be held Friday, July 20th, at 9:30 A.M.,at Ionia Free Fair Grounds, Ionia. Bring the whole family and a picnic lunch. First thing in the morning a short demonstration will be held for beginners. This is the major beekeeping meeting of the year. Don't miss the opportunity to meet your beekeeping friends and to enjoy learning more about the bee business.—E. C. Martin, Program Chairman.

The **Westchester County Beekeepers' Association** will hold its next regular meeting at the home of Mr. and Mrs. Alfred Roth, 146 Oak St., Port Chester, N. Y., on Sunday, July 15th, at 2:30 P.M. Plans will be discussed in regard to our joint meeting, which will be held in August, at Shrub Oak, N. Y. Bee problems will be answered by our expert beekeepers and a demonstration will be given on extracting honey. Visitors are also welcomed. Refreshments will be served.—Mrs. Alfred Roth, Pub.

Our **Minnesota Beekeepers' Summer Meeting** will be held on July 27 and 28 at the pavillion in Detroit Lakes. All beekeepers are invited to attend. —Frances Sundberg, Sec.

The **Eastern Apicultural Society** will hold its first annual conference at the University of Rhode Island, July 13 to 15. The officers have worked diligently to put together the best program obtainable. Registration for the program and room assignment will commence on the campus at 5 p.m. Thursday, July 12. There will be adequate workers available from the local Rhode Island Beekeepers' Association which is acting as host for the affair to help out-of-towners with their registration problems. Advanced program registrations and room requests may be mailed to the Secretary, Mrs. Maxine Manchester, RFD 2, Middlebury, Vermont. Beekeepers are urged to bring along their pet gadgets for the exhibit and they should look up Al Baptiste or Al Jones on the campus for details. It is hoped that the beekeepers will bring along some honey which will be used on the tables during the conference. There will be plenty of room accommodations for all, but those planning to attend should send in their advanced registrations where possible. Your local secretary will have copies of the program available for information. It is hoped that the beekeepers on the Eastern Seaboard will make this the biggest event during the 1956 season.—W. K. Davis, Publicity Director.

The **North Georgia Beekeepers Association** will meet at the home of Mr. and Mrs. B. F. Harris in Griffin, Ga., on Sunday, July 22. Mr. and Mrs. Harris have a nice lake and the members all bring a picnic lunch. Mr. Jim New will show a film and Dr. C. M. Beckham of Experiment, Ga., will speak. —Mrs. James Rochel, Sec.

The **Virginia State Beekeepers** will hold their summer basket picnic on July 25 Miller Park, Lunchburg. All beekeepers are invited to attend, and bring your basket lunch. We plan to have some good speakers present.—Henry W. Weatherford, Sec.-Treas.

Ohio State Beekeepers' Association Summer Meeting

Saturday and Sunday, July 21 and 22
Hale's Hall, Fairgrounds, Medina, Ohio

10-12:00 Tour through The A. I. Root Co. plant.
12:00 Noon E.D.S.T. Basket picnic lunch. Register, get tickets for banquet
12:45 Gather at Hale's Hall.
1:00 Welcome by Pres. Harry Vandenberg. President Ohio State Beekeepers' Association.
1:30 How to Interest People in Bees. Dr. Dane Miller, Chrm. Dept. Zool. and Entm., O.S.U.
2:15 Developing an Educational Program C. E. Pickering, Voc. Agr. teacher. Farmer-Beekeeper
2:45 Stump the Experts. Audience participating. Panel: C. E. Reese Extension Apiarist Dr. W. E. Dunham, Professor of Apiculture, O.S.U, Carl W. Michener, Pres. Stark Co. Asso., Moderator.
3:45 Visiting Period
4:00 Films and Slides. Robert Collier, Sec. of Association.
5:00 Visit Displays of Beekeeping Equipment.
6:30 Banquet at Hale's Hall
Invocation
Toastmaster—Alan Root
Introduction
Parade of Honey Queen Contestants —John Buchanan
Guest Speaker—Dr. L. L. Rummell, Dean of College of Agr., O.S.U. and Director of Ohio State Exp. Station, Wooster, Ohio.
Subject—Illustrated Talk "Ohio State in India".

PROGRAM SUNDAY, JULY 22nd

To give those who may wish to do so the opportunity to worship there will be no program Sunday A.M.

Vice Pres. Tom Keesee, presiding

12:00 Noon E.D.S.T. Gathering period.

XUM

12:45 Smoker contest. Every beekeeper is urged to bring his smoker. Fuel will be furnished.
1:00 Chas. A. Reese Ext. Apiarist, O.S.U. Common Errors of the Small Beekeeper.
1:30 Dr. W. E. Dunram. Prof. of Apiculture, O.S.U. — Pollination in the Plant Kingdom.
2:00 Why, When, and How to Manipulate Hives of Bees — M. J. Deyell, Editor of Gleanings.
2:30 Stump the Experts. Panel:
3:00 County State and National Organizations. H. R. Swisher, Beekeeper of Springfield.
3:30 Time out.
3:45 Demonstration period.
— Walter Thomas in charge.
1. Manipulate actual hive of bees.
2. Feeding demonstration
3. Smokers and smoker fuels.
4. Steps in queen rearing — Catherine Roser.
There will be a small queen-rearing yard on the premises.
4:45 Crowning of Honey Queen
Manufacturers of beekeeping supplies have been asked to have displays of all kinds of equipment on the grounds.
5:00 Go Home.
Keep pace with the traffic—may you arrive safely.

BEEKEEPING SHORT COURSE

Pennsylvania State University
August 13 to 17, 1956

Monday A.M. Registration
Monday P. M.
1:30 A Word of Welcome—Dr. Bertil G. Anderson
Introductions
1:40 Announcements
1:45 Introduction to Beekeeping Terms —W. W. Clarke
2:00 Secrets of the Hive—E. J. Anderson
2:45 Making a Start in Beekeeping —George Rea
3:00 Inspection of the Laboratory and Equipment
4:00 Demonstration on Assembling Equip.
Tuesday A.M.—W. W. Clarke
8:30 Colony Activities and Characteristics —Edwin J. Anderson
9:15 Care and Introduction of Package Bees—W. W. Clarke
10:00 Spring Management — George Rea
11:00 New Trends in Beekeeping —John Buchanan
11:30 Question Period
Tuesday P. M.
1:30 Work in the Apiaries to Observe
a. check colonies for swarm control
b. honey production
c. demonstrate swarm control practices
d. remove honey from colonies with bee escapes and carbolic cloths
Tuesday, Evening
7:30 Early History of Beekeeping—G. Rea
Movies—Story of the Bee
Wednesday A. M.
8:30 Swarm Control—W. W. Clarke
9:15 Races of Bees—George Rea
9:45 Comb Honey Production —Edwin J. Anderson
10:30 Role of the Honeybee in Pollination —John Buchanan
11:15 Extracted Honey Production W. W. Clarke
Wednesday P. M.
1:30 Demonstration
1. Shaking package bees
2. Introducing queens
3. Transferring bees from a box to a modern hive
Wednesday Evening
7:30 Composition Properties of Honey —Edwin J. Anderson
Sampling Kinds of Honey—W. Clarke
Thursday A. M.
8:30 Summer Management—E. Anderson
9:15 Requeening—George Rea
10:00 Fall and Winter Management W. W. Clarke
10:45 Extracted Honey and Its Care —John Buchanan
11:30 Queen Rearing—Edwin J. Anderson
11:45 Question Period
Thursday P. M.
1:30 Examining colonies in apiary used for queen rearing and mating queens
Grafting in the apiary
Removing honey
Making queen equipment
Thursday Evening
7:30 Honey Producing Areas—E. Anderson
Honey Plants—W. W. Clarke
Friday A. M.
8:30 Control of Skunk Mice, Ants and Wax Moth, etc.—E. J. Anderson
9:00 Diseases of Honeybees—W. W. Clarke
10:00 Marketing Honey—John Buchanan
10:45 Care of Beeswax—W. W. Clarke
11:15 Question Period
Friday P. M.
1:30 Extracting and bottling honey in the honey house with three sets of equipment
Grading comb honey
Wrapping cut comb honey
Bottling chunk honey
Working beeswax
Friday Evening
6:00 Banquet, Autoport on Route 322 on southern edge of State College.
Speaker
Movies

Notice to Our Honey Customers: We should like to notify you that we have vacated our old premises in Los Angeles that we have occupied for the past 20 years. We have moved our DRIED BEAN DEPARTMENT to our Bean Warehouse at Chino, California, some 35 miles east of Los Angeles. Mr. Robert M. Bryant, manager of our Honey Department since Mr. Sawyer's retirement, is affiliating himself with the B-Z-B Honey Company, Alhambra, California to combine our honey business with that company's, effective July 1, 1956, assisting Mr. H. H. Schumacher. Your telegrams and letters now should be sent to: B-Z-B HONEY COMPANY, Box 230, Alhambra, California. CABLES: BEECO, Alhambra.

July 7, Sioux City, Iowa, meeting sponsored by **Iowa Beekeepers' Association** with Sioux Honey Association as host for Nebraska and South Dakota Associations. Everybody invited. —F. B. Paddock, Sec.

HUNDREDS DIE IN BEEKEEPER'S WRECK

One more result of careless driving—but not by the driver of the truck carrying the bees. —Photo courtesy Ocala Star-Banner, Ocala, Florida.

HAVE YOU ever wondered what would happen if you were in a wreck with a truck load of bees? This is an experience that most of us have never had. However, an alert photographer managed to brave the thousands of angry bees to give us this vivid pictorial account of a luckless Florida beekeeper's unfortunate adventure.

It seems that Donald C. Houston of Live Oak, Florida, was merrily making his way early last March to one of those beautiful Florida orange groves in the anticipation of making a crop of delicious orange blossom honey. But his plans were delayed a few hours when he was struck by a careening car. This tipped the truck over on its side, scattering bees, frames, and equipment from about 100 colonies in all directions. A short while later the photographer was on the scene to make a once-in-a-lifetime picture.

Luckily no one was hurt even though hundreds of bees were killed. Houston managed to sort out the equipment and to get it loaded back on the truck. Meanwhile, most of the bees returned to the hives. He left one hive in the area to catch the "shaken up" bees that still milled around. No doubt he was not bothered by the many curious onlookers who generally crowd around a wreck. A few spectators yielded to the temptation to move near but they soon retreated as the stings began to hit their marks.

Not being easily discouraged, Houston resumed his trip later in the morning and we presume that he still made his crop of orange honey. At any rate, we think you'll agree that a beekeeper with this much determination deserves a crop of honey.—Sent by Norman E. Gary, Cornell University, Ithaca, N. Y.

AMPLE WATER FOR BEES ESSENTIAL

by **HOWARD M. GAY, Sturgis, Mich.**

I HAD six colonies producing honey in 1955. The average production per colony for the state was 50 pounds and the six colonies I had produced 210 per colony.

As soon as freezing weather was over in the spring, I gave each colony

(Continued on page 441)

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 18c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

Light and amber comb honey. Abram Brubaker, Rt. 2, Lancaster, Pa.

HONEY FOR SALE, can or truckload. Lloyd E. Allen, Tipton, Mich.

CLOVER extracted honey in sixties. Abram Brubaker, Rt. 2, Lancaster, Pa.

MICHIGAN'S finest raspberry, basswood, clover comb honey, in 4 x 5 window cartoned sections. Extra fancy, $8.00; Fancy, $7.00; No. 1, $6.00; No. 2 $5.00 case. Ready now for shipment. E. Z. Quick Way B Farms, Boyne Falls, Michigan.

FOR SALE — COMB HONEY. Ready to ship about July 15. Write for prices. C. W. Schrader, Waterville, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for all types extracted honey. Send sample and best price. Buckeye Honey Co. 3930 No. High St., Columbus 14, O.

CASH FOR BEESWAX. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse N. Y.

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, Ohio.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. M. R. Cary Corp. 1112-14 East Erie Blvd., Syracuse, N. Y.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Company, Millersport, Ohio.

BEST CASH DEAL for your honey (any grade) and beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

WANTED, chunk comb and extracted honey. Mail sample and prices. Stoller Honey Farms, Latty, Ohio.

BEESWAX WANTED — Highest prices paid in cash or trade for bee supplies. The A. I. Root Company, Medina, Ohio; Council Bluffs, Iowa, San Antonio, Texas.

Wanted: Light amber clover and fall-flowers honey, no buckwheat. Also white clover. Send sample and lowest price. Cloverdale Honey Co. Fredonia, N. Y.

WANTED—Honey in sixty-pound cans, also beeswax, any quantity. L. E. Allen, Tipton, Mich.

WRITE FOR Shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

CASH for Amber and Buckwheat Honey. Best cash price for wax. Hubbard, Onsted, Michigan.

WANTED—Buckwheat and some amber honey. Eastern Food Products, 421 Bedford Ave., Brooklyn, N. Y.

WANTED HONEY. May 8 our New Honey Processing Plant was damaged by fire. We are now processing honey in one of the other buildings same as usual. Bee Hive Factory and Comb Foundation Buildings were not damaged. Hubbard Apiaries, Onsted, Michigan.

FOR SALE

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE—New heart cypress 10-frame bottom boards. KD., 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. One nailed up sample postpaid. $1.25. Fred L. Poole Elizabethtown, Rt. 2, Box 67, No. Car.

FOR SALE — 8-frame Root equipment for 700-colony apiary. Write for details to E. H. Wadleigh, Monte Vista, Colo.

QUEENBEE PAINTING ONTFITS, $1.50 postpaid. Southwick Apiaries. Waban Massachusetts.

FOR SALE—One used small extractor; one used large extractor. Hubbard Apiaries, Onsted, Michigan.

FOR SALE — Several thousand once-used 60-lb. cans, 30c each; also 1500 more than once-used cans, 20c. F.O.B., River Rouge, Honeymoon Products Co. 39 East Henry St., River Rouge, Michigan.

LARGE CAPPING PRESS, Bradshaw specifications, also home-made wax press with melting vat. Gerald Hodson Converse, Indiana.

FACTORY-MADE beeway comb honey supers for sale cheap; 2-frame reversible extractor, $25.00. All fine shape. Fred Peterson, Alden, Iowa.

COMPLETE—Section Honey Setup, app. 400 colonies, trucks, etc. $5.000. Same chain outlet for the past five years. App. 8,.000 sections on hand. -New Crop extra. W. B. Watson, Rt. 1, Box 885, New Port Richey Florida.

FOR SALE—Once-used cans and once-used drums. Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted, Michigan.

FOR SALE—Quantity full-depth supers, bottom boards, covers etc. E. L. Potter, 2115 Alpha Street, Lansing, Michigan.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

CAUCASIANS—2-lb. package, $3.50; 3-lb. package, $4.50. Untested queens $1.00 each; 100 for $85.00. Lewis & Tillery Bee Company, Rt. 3, Box 90, Greenville, Ala.

PACKAGE BEES—Take a vacation on your express money. Come for your bees; be our guest while here. 1800 hives to shake. Booking orders now. MILLER BROS., SAFFORD, ALA.

THE YANKEE STRAIN — $1.00 each. The best queens for honey production. 23 years of breeding. The Stricker Apiaries, Annandale, N. J.

THE NORMA ROY APIARY—3 pound bees with queen, $3.75; 3 pound queenless, $3.00. Live delivery and a health certificate with shipment. Norma E. Roy & Son, Hessmer, La.

FOR SALE — 100 colonies two stories. 300 extracting supers. George Simon, Rt. 3, Chillicothe, Ohio.

CARNIOLAN and CAUCASIAN queens, $1.00 each. I have the late Albert G. Hann strain of bees. Build up fast, make lots of white comb honey. Gentlest of all bees. Roy Waddell, R. 3, Woodruff, S. C.

NORTHERN ITALIAN QUEENS — for production $1.00 each; 10 up, 90c. Shirl Baker Rodney, Michigan.

IT PAYS TO REQUEEN. Old queens in your hives cost a lot through lost production. Young queens pay for themselves and give a good profit besides. One super of honey difference in favor of the young queen is not too much to expect in most any location. We can furnish the best select young Italian laying queens from now until Oct. at $1.00 each; 10, $9.00; 25, $20.00. Prompt shipment. No disease. Air Mail postpaid. H. C. Short, Fitzpatrick, Ala.

SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Ia.

HONEY WANTED

Carloads and less than carloads. Mail sample and best prices in all grades.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

NORMAN BROS.

QUEENS 65c

By return mail

NOW READY. Send us your rush orders. Prompt service, full weight, safe arrival, health certificate, and satisfaction.

— PRICES —

2-lb. pkg. with queen $2.75
3-lb. pkg. with queen 3.50
Tested queens 1.00

Package bees are shipped express F.O.B. If wanted shipped parcel post, add postage.

NORMAN BROS. APIARIES

Ramer, Ala.

QUEENS

$1.00

W. E. PLANT

Hattiesburg, Miss.

HARPER'S FAMOUS HIGH QUALITY

Italian Queens, air mail ..... 75c each
10 and up ..... 70c each

CARLUS T. HARPER

New Brockton, Ala.

Booking orders now. Over 30 years a shipper. Send for Free Circulars.

BLUE BONNET APIARIES
Weslaco, Texas

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

DARK ITALIAN QUEENS

1 to 50 .....$1.00 each

51 and up ..... .90 each

For queens
that are
as Good as the Best
order from

WEAVER APIARIES
Navasota, Texas

HOLLOPETER'S QUEENS NOW READY

After latest spring on record, we can now give prompt service on queens from our HARDY, HUSTLING, HONEY GATHERING Italian stock.

Young Laying Queens

1-9	**$1.00 each**
10-24	**.90 each**
25-49	**.80 each**
50-99	**.75 each**
100-up	**.70 each**

WHITE PINE BEE FARMS
Box 810 Rockton, Pa.

CAUCASIAN or ITALIAN

Package Bees and Queens for 1956

Gentle bees, less swarming, good producers, health certificate and live arrival guaranteed are just a few things you get when your requirements are sent to me. No extra charges on orders booked in advance.

	1-25	25-50	50-100
2-lb. pkg. w/q	**$3.00**	**$2.90**	**$2.80**
3-lb. pkg. w/q	**4.00**	**3.85**	**3.75**
4-lb. pkg. w/q	**5.00**	**4.80**	**4.60**
5-lb. pkg. w/q	**6.00**	**5.75**	**5.50**
Queens	**1.00**	**.90**	**.80**

Prices subject to change without notice.

FARRIS HOMAN
SHANNON, MISS.

LITTLE'S APIARIES

ONLY source of ORIGINAL John M. Davis ITALIAN QUEENS

1-24	25-99	100-up
$1.25	**$1.15**	**$1.05**

Producers of ROYAL JELLY
P. O. Box 122
Shelbyville, Tenn.

WANTED

Wish to purchase 100 to 400 hives northern or central New York on location with or without equipment. Box 2860 Gleanings, Medina, Ohio.

MISCELLANEOUS

"Adventures in Beekeeping". Illustrated. $2.00. Robert Oglesby R. R. 1, Middletown, Ohio.

PLAIN or wavy-wired foundation. Beeswax rendered and purchased. Wax Workers, Ithaca, New York.

ROYAL JELLY in capsules. Each contains 10 mg. Royal Jelly, 5 mg. Vitamin B, 5 mg. Calcium Pantothenate. Boxes of 30, $1.50 to beekeepers. Retails for $3.00. Prairie View Honey Co., 12303 12th St., Detroit 6 Michigan.

FOR SALE—Royal Jelly and The Little Queen Royal Jelly Extractor. Royal Jelly Enterprises, 1017 Los Carneros Avenue, Napa, California.

WANTED—Cash paid for a large outfit of bees in the midwest, standard 10-frame size preferred. Send all information in first letter. Box 224, Gleanings, Medina, O.

HELP WANTED

WANTED—Experienced beekeeper and one helper able to drive truck. Year around employment. Hubbard Apiaries, Onsted, Michigan.

Commercial honey producer has permanent position open for reliable experienced beekeeper. References required. Write C. S. Engle, Box 178, Wolfe City, Texas.

MAGAZINES

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P. India or available through them. Subs. Rs9/ or 15 shillings or $2.25 yearly. Sample copy post free for Rs1½/, or s2/6, or 20 cents (International Money Order) Payment in mint postage stamps of your country accepted.

Archiv fur Bienenkunde, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest economic bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Classic. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. Biene-Verglag, Giebelbach, Lindau, Germany.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $3.00 per annum. Apicultural Abstracts only $1.75 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane, ASHTEAD, Surrey, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer P. O. Box 3106, Cape Town, South Africa.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser Hotel Cactus. San Angelo, Texas, the only ranch magazine serving the Angora Goat industry. Subscription $1.00. Sample copy 15 cents.

JENSEN'S QUEENS ARE TOPS

We do not presume to have the only good queens but we believe them equal to any and superior to many. Repeat orders substantiate this opinion.

Requeening is a most important practice in good apiary management. Since so much depends on queen performance in your hives, it is necessary that good parent stock and breeding skill be inherent to the 'nth degree; and this we have in good measure.

Reg. U.S. Pat. Off.

Prices for balance of season.

Dadant "Starline" 4-Way Hybrids The peer of Hybrids	Magnolia State Italians 3-banded Leather-colored
1-24, $1.40 ea.	$1.20 ea.
25-99, 1.30 ea.	1.10 ea.
100-up, 1.20 ea.	1.00 ea.

Clipped and Marked Free. Air Mailed. Live delivery, and satisfactory performance after safe introduction guaranteed.

Play safe; go JENSEN all the way.

Remember: First cost may not always be the last cost.

JENSEN'S APIARIES MACON, MISS. U.S.A.

AMPLE WATER FOR BEES

(Continued from page 437)

a Boardman feeder and used a one-quart jar in which I placed water.

A neighbor told me he found a great many dead bees in his bird bath. After using the Boardman feeder there were fewer dead bees in the bird bath.

The bees soon learn where they can get the water and consume a considerable quantity.

I keep the water cans on until there is danger of freezing.

During the hot summer months I place a paper sack over each feeder to prevent the water from getting too warm.

I believe my larger average for each colony was partly due from having access to water during the production months.

I also add one fourth of a tablespoon of salt to each one quart of water.

GLEANINGS IN BEE CULTURE:
Dept. E-2, Medina, Ohio

Yes! Enter my subscription to Gleanings for the period checked below:

☐ 1 yr. $2.00 ☐ 2 yrs. $3.50

☐ 3 yrs. $5.00

50c per year extra for foreign

Name .....

Street .....

City ..... State .....

☐ Remittance enclosed. ☐ Bill me.

QUEENS

We have plenty of good young Italian queens for immediate shipment—booked heavy on Caucasians now but will have some later.

PRICES

In Lots of:	
1 - 24	85c
25 - 499	75c

Tested Queens $2.00 each

The Stover Apiaries

Mayhew, Miss.

Cover Picture

A swarm in July may not be worth a fly but a swarm like this one is surely worth hiving.
—Photo by John Buchanan.

Buy U. S. Savings Bonds They come in all sizes .... and grow bigger every year.

DADANT'S Starline Hybrids or, GARON'S Three-Banded Italian Queens will make profit for you.
Do not be caught with poor or failing queens.

— Prices — QUEENS

	Starlines	Italians		Starlines	Italians
1-24	$1.30	95c	25-99	$1.20	90c
100-up	1.10	85c			

Reg. U.S. Pat. Off.

Queens clipped or marked, if desired, free.

GARON BEE COMPANY **Donaldsonville, La.**

BRIGHT THREE-BANDED ITALIAN QUEENS

Our Mott Strain is from early imported Italians. Their behavior is more according to pattern than most other races. They are usually gentle, hardy, good workers, and not inclined to swarm. Use our queens and you will be in line for all the honey crops, and have nice bees to work with.

PRICE — Balance of Season

1 to 50 $1.00 each 50 or more, 90c

TAYLOR APIARIES
Box 249 Luverne, Ala.

FLOWERS' QUALITY ITALIANS

THAT STAND TEST FOR HONEY-GATHERERS: GENTLE: PROLIFIC: QUEENS BRED FROM HIVES MAKING 300 lbs. and over of honey; fumidil B-fed grafting and queen yards. HEALTH CERTIFICATE WITH EACH SHIPMENT.

QUEENS — Any Quantity

1-50	75c
51-100	65c
101-up	55c

ALL QUEENS DELIVERED AIRMAIL
PROMPT LIVE DELIVERY GUARANTEED

FLOWERS BEE COMPANY
JESUP, GEORGIA, U.S.A.

WILLIAMS ITALIAN QUEENS
LARGE LEATHER-COLORED
THREE-BANDED
QUALITY SUPREME
CERTIFICATE WITH EACH SHIPMENT

1 - 9 Air Mail	85c each
10 -99 Air Mail	80c each
100-up Air Mail	75c each

DR. WILLIAMS APIARIES
115 W. Sterling Ave. Baytown, Texas

Italian Queens
EUGENE WALKER
Rt. 2, Box 207
Live Oak, California

LIVE AND LEARN

(Continued from page 415)

had a dose of them last year; in fact, caught one of them in the act of laying. I wonder if these dopes will start that, or whether they will just dwindle away.

I am not going to take any chances. Tomorrow I will unite that other colony from which I took the frame of brood with them, with the queen-right colony on top. I burnt my fingers once by doing the opposite, and found that instead of one hive gone bad, I had two. The bees on top generally rule the roost in a case of uniting, and I don't want these contrary bugs to destroy the new queen they are getting. Her bees, when they are on top, should hunt out whatever is gumming up the works, and maybe I'll end up with a good colony after all.

STORE DISPLAYS WILL SELL HONEY

(Continued from page 395)

Or what better way to make people use more honey than by giving them recipes that show new ways to use nature's perfect sweet? Honey candy and honey cookies also make wonderful giveaways. Don't forget, with these samples you also give away good will which in the long run is an important part of any business. Put any leftover food samples away at night to keep them fresh and free from dust.

A Reminder

Maybe you already have a small display for roadside selling which can be set up in stores. If you haven't but would like to make one look up the article "Make Your Own Honey Display Stand" in the November 1955 Gleanings.

Remember, honey that is attractively packaged will sell better so choose your containers and labels with care.

YORK'S QUALITY BRED QUEENS

Your Choice of Two Outstanding Strains

DADANT'S Improved Starlines or
YORK'S Quality Bred Italians

Italians		Starlines	
1-24	$1.10	1-24	$1.35
25-99	1.00	25-99	1.25
100-up	.90	100-up	1.15

Reg. U.S. Pat. Off.

The Preference of Leading Honey Producers

YORK BEE COMPANY — **Jesup, Georgia**
(The Universal Apiaries)

WILBANK'S
QUEENS "ITALIANS" QUEENS

For your summer and fall requeening we offer you an outstanding Strain of Three Band Italians and can furnish select young laying Queens promptly on receipt of your order.

Prices

1-24	$ .85 each
25-up	.75 each
Tested Queens	1.50 each

Queens clipped and/or painted on request. Shipped prepaid Air Mail.

Quality Does Not Cost — It Pays

THE WILBANKS APIARIES — **Claxton, Georgia**

SMITH'S QUEENS

None better at any price.
Three-banded stock.
1-9, 75c 10 or more, 70c each
N. B. SMITH & CO.
Calhoun, Alabama

Carniolan and Caucasian

Requeen your swarms and increase with young laying queens for quick build-up. Caucasian and Carniolan are the gentlest of all races of bees, build white comb, work in cool weather and not bad to drift into other colonies. hence less liable to disease. Laying queens $1.30 each air mailed. $2.00 each to foreign countries. After June 15.

W. D. REAMS
Rt. 5, Morristown, Tenn.

The New Zealand Beekeeper

The Quarterly Magazine of the National Beekeepers' Association of New Zealand. Better Beekeeping—Better Marketing. Subscription, 8 shillings per year, payable to

THE GENERAL SECRETARY
Box 19 Foxton, New Zealand

FROM FOREIGN LANDS

(Continued from page 422)

candles as well as the foundation beeswax market. So reports Karl Rau, beeswax specialist at The A. I. Root Company, Medina, Ohio.

Beeswax production in Tanganyika was largely developed by the Germans for there was little evidence of beeswax trade in pre-German times. By 1905 it was third in value among the products exported, being preceded only by rubber and copra. In 1906 as much as 383 tons was exported. From then on, according to F. G. Smith, except for a gap caused by World War 1, the average annual export increased steadily to the present level of 650 tons.

Smith, Francis G. Beeswax. Tanganyika Bee Div. Pamphlet 1, 1954.

"GULF BREEZE" ITALIAN QUEENS

The sale of GULF BREEZE queens broke all records for the first half of the year. There is a good reason, so try them if you have not already done so.

PRICES: 1-24, 80c each 25 up, 75c each AIR MAILED

BESSONET BEE COMPANY Donaldsonville, La.

BETTER BRED QUEENS Three Banded Italians

Conditions have been extra good for Queen rearing in our location this season, therefore, we have plenty of good queens to fill your orders from our "BETTER BRED STOCK".

Any quantity ..... 75c each

CALVERT APIARIES CALVERT, ALABAMA

THREE-BANDED ITALIAN BEES & QUEENS

Of two extra good strains. Good workers and very gentle.

Our Reg. Strain Untested Queens		Starline Queens	
1-25	$1.10	1-25	$1.30
25-100	1.05	25-100	1.20
100 up	1.00	100 up	1.00

PACKAGE BEES: 2-lb. with queen .....$3.50 3-lb. with queen $4.50

For package bees with Starline Queens, add 25c per package.

ALAMANCE BEE COMPANY GRAHAM, N. C. PHONE: 4703 or 7896

HOWARD WEAVER'S

Personally Reared

Caucasian Queens

— Prices —

1 to 24 ..... $1.00

25 and up ..... .95

Howard Weaver

Navasota, Texas

QUEENS

Nice large queens .....65c each

Send us your order of 1 or 1000

MITCHELL'S APIARIES

Bunkie, La.

1956 QUEEN BEES

3-Banded Italians

1-24 ..... $1.20 each

25 or more ..... 1.10 each

Geo. W. Moore

Shasta, Shasta Co., California

4-H BEE CLUBS

(Continued from page 393)

A record is kept of expenses, labor, receipts, inventory, and story. The county agent, local leader, or specialist, scores each member on management and records. Usually a round-up is held at which time honey is shown and judged, the record books are scored, and ribbons are awarded for the year's work.

An interested county agent and good local leaders, along with interested parents, make for a good 4-H Bee Club and successful 4-H members. We find there is little advantage in having a club member come from a beekeeping family and, if he does, we prefer to have him keep his bees separate from the family bees. We urge parents to show some interest in the project and to attend meetings with club members.

Our 4-H program starts its members with one or two colonies of bees. We then encourage them to increase the number of colonies as they become more experienced. We would like to have these new beekeepers produce extracted honey and, as they learn more about bees, they are encouraged to produce cut comb, chunk honey, or comb honey along with extracted honey.

HANDLING THE HONEY CROP

(Continued from page 420)

honey in an orderly way. One of the mistakes that many beekeepers make is selling all the honey crop as soon as it is ready for the market. This is not orderly marketing, and often is the cause of honey being sold at below cost prices. The beekeeper should establish a few good customers and keep them supplied 12 months in the year. It is better to get out and buy some honey for your retailer than to run out of honey and lose business. Honey makes an excellent gift and many salesmen and insurance men would be glad to buy some honey to hand out to their customers if they were contacted on the matter.

Although we have no figures to prove the fact, honey packed with chunk comb should wholesale at 30 cents per pound and retail for 40 cents per pound in order for the producer to make a profit.

If a grocery man has trouble selling your honey take it up and place it where honey is in demand. See that the jars are kept clean and displayed where they can be seen. A dirty jar on the outside will not sell honey.

3- Banded

Italian Queens

Airmail — prepaid

any number

$ .90 each

H. C. BRUNSON

P. O. Box 188 Ph: 2161

Hampton, S. C.

NOW is the time to

ORDER

Your HONEY LABELS

Ask for our Label Catalog

THE A. I. ROOT COMPANY

Medina, Ohio

Queens! Queens!

Now that the package rush is over, we are in position to offer queens.

Requeen or make increase with either Island Hybrids or Rossman Regular Italians. You cannot go wrong with either.

	Island Hybrid	Regular Italians
1-25	$1.35	$1.15
26-99	1.25	1.00
100-up	1.15	.90

We can still supply Package Bees.

"They Produce"

Rossman Apiaries

P.O. Box 133 Moultrie, Ga.

J. E. WING & SONS

43 Years Continuous Service

Italian Package Bees and Queens

Our Specialty

Knights Landing, Calif.

BEEKEEPING IN ILLINOIS

(Continued from page 397)

though, in round figures, there are about 165,000 colonies in Illinois and, as an average, there is an annual output of honey of approximately 35 to 40 pounds per colony.

Since the majority of beekeepers in some areas such as in some of the northern states west of the Mississippi River are large operators, the low average reported annual production in Illinois does not compare favorably with northwestern areas because the Illinois average includes the large number of apiaries of only a few colonies operated with few supers for comb honey production. The average production for commercial apiaries in Illinois is probably at least double that annually reported.

Sue Bee Says:

"THE NEW SUE BEE UNCAPPING MACHINE WILL BE AVAILABLE THE WEEK OF JULY 16th."

This machine will replace the Bogenshutz uncapping machine. The SUE BEE UNCAPPING MACHINE has a completely new cutting head design. Several other new features have been incorporated in this machine to make it the finest uncapping machine available. The combs, after being uncapped by this machine, look as if they had been uncapped with a hand knife. If you are interested in the SUE BEE UNCAPPING MACHINE, contact us at once.

Take advantage of the following prices which we offer you for the extracting season:

Carbolic Acid - 5 lb.	**$ 4.75 (not mailable)**
Carbolic Acid - 1 lb.	**1.65 (not mailable)**
Cyanogas - 1 lb.	**1.00 (not mailable)**
Cyanogas - 5 lb.	**4.25 (not mailable)**
Two-stem Steam-heated Knife	**7.75**
Woodman Vertical Uncapping Knife	**90.00**
1 1/4-inch Honey Pump	**58.75**
30 Frame Extractor	**190.00**
50 Frame Extractor	**325.00**
Electric Super Elevator	**200.00**
Electric Knife	**14.50**
Electric Plane	**16.80**
8-inch Hive Tool	**.85**
10-inch Hive Tool	**1.10**

Write us for prices on your container needs.

SEND YOUR CAPPINGS
TO OUR RENDERING PLANT
FOR EARLY PROMPT SERVICE

SIOUX HONEY ASSOCIATION

Sioux City, Iowa; Lima, Ohio; Anaheim, Calif.; Rogers, Texas; Waycross, Ga.; Tacoma, Wash.

THE RUSH IS OVER

We can now fill queen orders on time, also package bee orders for late customers. Requeen with good queens while they are cheap. Our 100 per cent Satisfaction has been good for 45 years—let us prove it.
Improved Italians only.

Untested queens	**$ .75 any number**
Tested queens	**1.50 any number**
2-lb. packages with queens	**2.75 any number**
3-lb. packages with queens	**3.25 any number**
Queenless bees or large packages	**1.00 per pound**

MERRILL BEE COMPANY P.O. Box 115 State Line, Miss.

The Yankee Strain — $1.00 each
The Best Queens for Honey Production
23 Years of Breeding
The Stricker Apiaries
Annandale, N. J.

LET'S TALK ABOUT HONEY PLANTS

(Continued from page 423)

extracted separately and sold as horehound honey, it is well liked by people who like the flavor of horehound candy. It has also been recommended as a cough syrup. Some years ago I obtained a pound of this honey which I passed out in dripless pourers for tasting at meetings with several other kinds. Its unusual flavor always invoked interesting comments. Most people enjoy trying honeys from unusual sources with different qualities just as they enjoy new flavors in jam or jelly.

I have just received a revised list of the kinds of honey sold by Andre Prost of New York City. It includes 46 kinds imported from other countries and 82 American kinds of honey, representing some 50 different species or blends. Included are such well-known kinds as Spanish needle, blue vine, alfalfa, fireweed, cotton, orange, sage, star thistle, clover, sweet clover, palmetto, and tupelo. He also handles such less well-known kinds as soybean, lima bean, dandelion, spearmint, blueberry, purple loosestrife, apple blossom, acacia, poison oak, mesquite, and many others. Any beekeeper who gets any kind of honey from an unusual floral source can easily sell thousands of pounds by bottling it under its floral name. Usually such special brands of honey bring premium prices even if the flavor is only fair. Any one interested please write the author of this column for information.

Quality Bred Italian Queens
75c each, $8.00 per dozen
All queens shipped Air Mail.
Our breeders picked from our Michigan Apiaries for High production and hardiness.
WALTER D. LEVERETTE APIARIES
P. O. Box 364 Ft. Pierce, Fla.

Young Laying Three Band and Hybrid Italian Queens
1 to 19 .... 75c each
20 up ..... 65c each
3-lb. Pkgs. of bees each with young laying queen, $4.00 each, plus shipping charges. We ship bees C.O.D. when requested. We ship queens in lots of 20 or more C.O.D. We pay shipping charges on queens.
If you need them quick, try us.
JACKSON APIARIES
P. O. Box 58 Funston, Ga.

XUM

KELLEY — "The Bee Man"

QUEENS

KELLEY ISLAND queens by the thousand are available now. If you are in a rush count on us for quick shipment by return air mail.

1-24 ..... 85c by prepaid air mail

25-99 ..... 75c by prepaid air mail

100-up ..... 70c by prepaid air mail

THE WALTER T. KELLEY CO. Clarkson, Ky.

Prepare for the Future . . . .
Buy United States Savings Bonds Regularly!

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